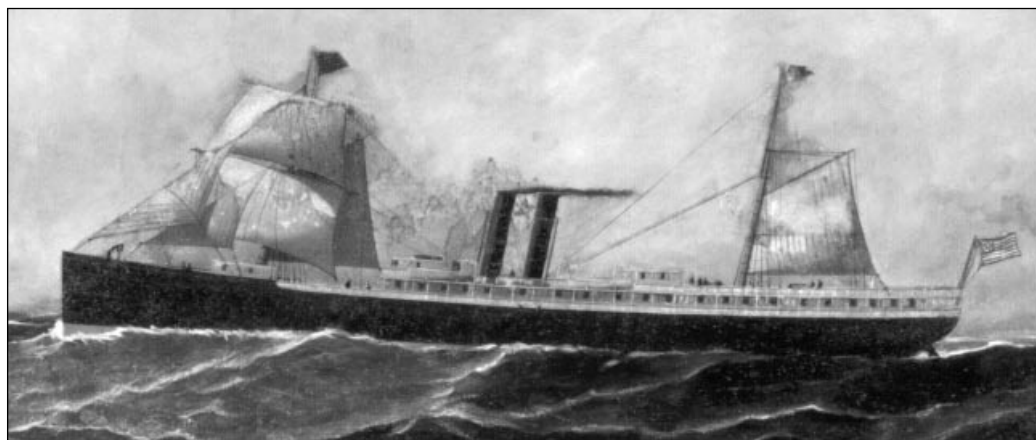


Current ARCHEOLOGY IN TEXAS

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Antonio Jacobsen's painting of the City of Waco, which provided valuable clues in identifying the wreck off Galveston. Yellowed and stained varnish partially obscures the detail of the ship. Courtesy Mariners' Museum, Newport News, Virginia.

Ship Went Down in 1875 Fire City of Waco Located in Galveston Bay

by Andy Hall

THC Archeological Steward

Marine stewards with the Texas Historical Commission (THC) archeological stewardship network are working to uncover the story of one of the state's worst maritime disasters.

On the night of November 8–9, 1875, the Mallory Line steamer *City of Waco* caught fire — cause unknown — and burned at her anchorage off Galveston. A late autumn storm was raging, blowing a full gale, and although the crews of a dozen or more ships could see the disaster unfolding only a short distance away, they could do nothing in the teeth of the wind and sea. Nor, in an age before wireless, could they summon help from the nearby city. They could only watch, and listen to voices in the darkness crying for help as passengers and crew from the blazing ship drifted by on wreckage and makeshift rafts. Fifty-six people were aboard the *City of Waco* that night. None of them survived.¹

Few marine disasters on the Texas coast have taken so many lives, but the story of the *City of Waco's* demise is almost unknown today. It is mentioned only in passing in a few specialized histories of the region, like Richard Francaviglia's *From Sail to Steam: Four Centuries of Texas Maritime History, 1500–1900*, and most authors overlook it

Continues on page 2



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entirely.² The wreck itself was marked as a hazard to navigation until it was finally blasted with dynamite in February 1900 to clear the obstruction. The name *City of Waco* was erased from the charts, and with it all memory of the event.

Surveys reveal a wreck, but is it the *City of Waco*?

In 2003 a U.S. Army Corps of Engineers survey noted a large wreck about a mile off the end of the south jetty at the entrance to Galveston Bay. It was tentatively identified as the dredge *Galveston*, which sank on the north jetty in 1943.

Realizing that the position of this wreck was far from where the *Galveston* was known to have sunk, State Marine Archeologist Steve Hoyt undertook research to identify the vessel. Examining copies of historic charts in the THC collection, he quickly realized that the wreck lies in exactly the same position as a wreck buoy shown on the 1867 “Galveston Entrance, Texas” chart, with aids to navigation corrected to 1883. Added to the map for the 1883 corrections, the wreck buoy is actually outside the map border, and it is clearly labeled “City of Waco.”

Marine Steward Gary McKee searched historical records for information about the long-forgotten *City of Waco*, and at Hoyt’s request the environmental and engineering consulting firm PBS&J conducted a sonar and magnetometer survey of the site.

The PBS&J sonar images reveal in great detail the remains of an iron-hulled ship protruding from the muddy sea floor (see image below). The forward end of the ship is largely intact, with upright hull plating, deck beams, and machinery all clearly visible.

Divers contribute the crucial evidence

To confirm the ship’s identity, Hoyt enlisted the help of Marine Steward Andy Hall, who is also president of the Southwest Underwater Archaeological Society (SUAS), a volunteer group that works closely with the THC to document wrecks in Texas. Hall and other members of the SUAS made the first dives on the site in late November 2003. Diving conditions proved to be extremely difficult, however. Visibility was quite poor, and because of a strong current the divers could not hold their positions.

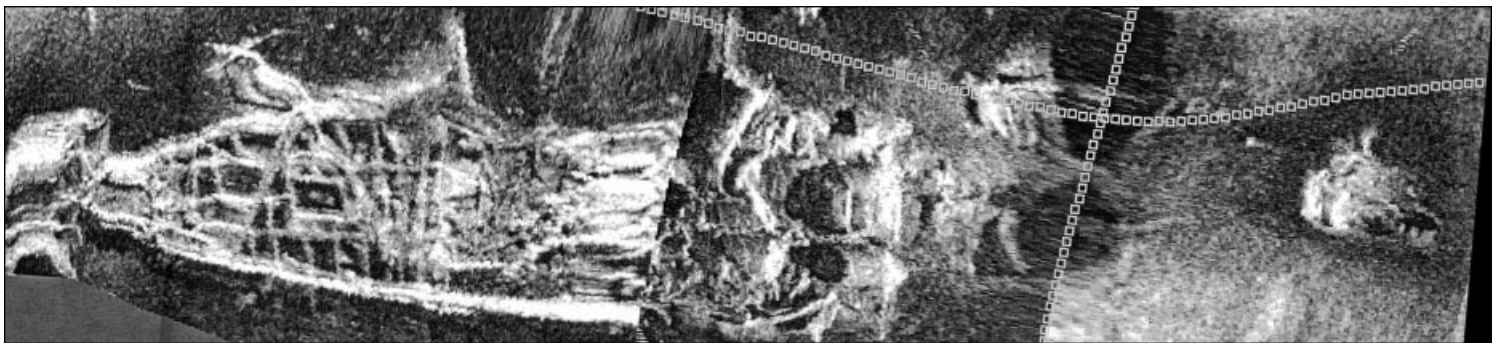
Hall, Hoyt, and SUAS members were able to dive successfully in the fall of 2004 and confirmed that a large part of the wreck remained intact. SUAS team members located several distinctive features. While none of these features directly identified the wreck as the *City of Waco*, all were consistent with that identification. Of special note were two pairs of large cylindrical objects, roughly 16 feet in length and three feet in diameter. They appear to be boilers and are matched, port and starboard. Although these objects do not correspond to the dimensions of the ship’s main (i.e., propulsion) boilers as described in contemporary accounts, they could be auxiliary boilers or holding tanks for fresh water or other liquids.

Large elements of the wreck remain relatively intact. Long continuous segments of hull plating are exposed, extending three to four feet above the bottom. Substantial amounts of deck framing are exposed forward, suggesting that part of the ship is settled 20 feet or more into the bottom. Within the margins of the hull, a significant jumble of broken hull plate, piping, and other general wreckage was observed — all of which are consistent with the fire that destroyed the *City of Waco* and the demolition work done 25 years later.

Because the features observed by divers and seen in the sonar images are consistent with known construction details of the vessel, and because the wreck lies at the position indicated in the 1883 map, we are confident that it is indeed the *City of Waco*.

The SUAS plans more dives for 2005 and hopes to complete remote-sensing projects that will further define the wreck site. Texas A&M University at Galveston has expressed interest in performing an additional magnetometer survey, which should help locate targets outside the hull that may directly relate to the vessel — anchors, for example, or other ship structure ripped away from the main body during the demolition work of 1900. The SUAS would also like to work with other groups or sponsors to perform comprehensive, multibeam sonar imaging to establish a true three-dimensional reconstruction of the wreck site as it is today.

Both the THC and the SUAS intend to pursue investigations of the *City of Waco* for several years. Although it may be impossible to determine what caused the disaster, all those



Sidescan sonar image of the wreck by PBS&J. Much of the wreck remains intact, with hull plating and deck beams clearly visible. Courtesy PBS&J.

involved in the project hope their efforts will at least call attention to a forgotten tragedy in Texas history.

Endnotes

1. *Galveston News*, 10 November 1875, 11 November 1875, 12 November 1875, 16 November 1875, 18 November 1875; *New York Times*, 14 November 1875.

2. Charles Waldo Hayes' *Galveston: History of the Island and the City*, written just a few years after the disaster but not published for nearly a century, gives a fairly complete account of the event, but later writers have either mentioned it only in passing or overlooked it altogether. David McComb's *Galveston: A History*, generally acknowledged as the best general work on the history of the community, does not mention it at all, nor does Earle Young's *Galveston and the Great West*, an otherwise meticulous account of Galveston's emergence as a port in the late-19th century. Francaviglia's *From Sail to Steam* mentions the disaster (p. 234) but ignores the presence of the ship's deck cargo of kerosene, a major point of discussion and controversy in the aftermath of the ship's loss. Keith Guthrie, in his *Texas Forgotten Ports* series, mentions the presence of oil (Vol. II, p. 222) but, like other authors, makes no acknowledgment of the public debate that followed in the wake of the disaster. Guthrie incorrectly claims the *City of Waco* carried 2,000 cases of oil; by almost all contemporary accounts, the number was 200.

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CURRENT RESEARCH

The Long-Neglected Site of the First Capital of Colonial Texas: Investigations at San Felipe de Austin (41AU2), Austin County, Texas

by Marianne Marek

In 1823 the Mexican government granted Stephen F. Austin permission to bring 300 settlers to form the first Anglo colony in Hispanic Texas. Site 41AU2 consists of the 148-acre town site that was established in 1824 by Empresario Stephen F. Austin to serve as the headquarters and capital of his colony. San Felipe de Austin was the political, social, and economic center of Austin's Colony, and at its peak the town consisted of more than 45 buildings and 600 residents with commerce second only to San Antonio. In 1836, during the War for Texas Independence, the Anglo settlers completely burned the town of San Felipe de Austin to prevent its occupation by Mexican troops. The Texan forces also successfully defended the river crossing at San Felipe de Austin, thereby forcing the

Mexican troops to travel downstream to cross the river at Fort Bend. After 1836 San Felipe was only partially resettled. The area has subsequently been used primarily for pasture; therefore much of the charred and buried remains of the historic town remain virtually intact.

San Felipe de Austin is listed as a State Archeological Landmark and has been determined eligible for inclusion in the National Register of Historic Places. It is as historically important as the sites of Goliad, San Jacinto, the Alamo, and Washington-on-the-Brazos, yet little has been done to study or preserve this significant town site. The San Felipe de Austin Archeology Project is the first concerted effort to scientifically study and preserve the historic remains of San Felipe de Austin.

Only a small portion (approximately 15 acres) of site 41AU2 is owned by Texas Parks and Wildlife. The remaining 90 percent is owned by private individuals. The San Felipe de Austin Project is the first historical and archeological investigation ever conducted on the privately owned portions of site 41AU2. One of the goals of the project is to protect this important archeological site through public education and the development of historic tourism in the area. The site is severely endangered by erosion, and significant portions of it have already been lost. Therefore, the archeological work includes excavating endangered areas before they are destroyed.

The project is sponsored by a consortium of six local organizations: the City of San Felipe, the Stephen F. Austin Park Association, Austin County, the Austin County Historical Commission, the Fort Bend Museum Association, and the Sealy Chamber of Commerce. It is partially funded by grants from the Texas Historical Commission (THC) Texas Preservation Trust Fund and the Summerlee Foundation. Additional funding has been provided by private donors and contributions from the City of Sealy, the City of San Felipe, the Bellville Economic Development Corporation, and the Austin County Historical Commission. Archeological excavations are conducted primarily by volunteers under the direction of principal investigator Marianne Marek and one or two archeological assistants. Project volunteers include THC archeological stewards; members of the Houston, Fort Bend, and Brazosport archeological societies; members of the Texas Archeological Society; archeology students; members of several historical societies; and local residents with an interest in the history of the area. Volunteers travel from as far as Austin and College Station to participate in the project.

A Brief History of San Felipe de Austin

In an attempt to reestablish his family's fortune, Moses Austin petitioned the Spanish government and in 1820 received permission to settle 300 families as the first Anglo colony in Texas. Shortly after his return from Spanish Texas, Moses Austin contracted pneumonia and died. The responsibility for the colony passed to his son, Stephen F. Austin, who immediately began to recruit Anglo colonists from the adjoining United States (Barker 1926:23–28).

In 1821 Mexico gained independence from Spain, and the new provisional Mexican government refused to recognize Austin's grant. Although settlers began arriving in Texas as early as 1821, official permission to establish the colony was delayed by Mexican politics until 1823 (Moore 1929:9). Austin's colony encompassed all the land bounded by the San Jacinto River on the east, the Lavaca River on the west, the Gulf of Mexico on the south, and the Old Spanish Trail on the north (Figure 1).

After finally acquiring permission to establish the colony, Stephen F. Austin and the Baron de Bastrop selected a location for the colony headquarters on the west bank of the

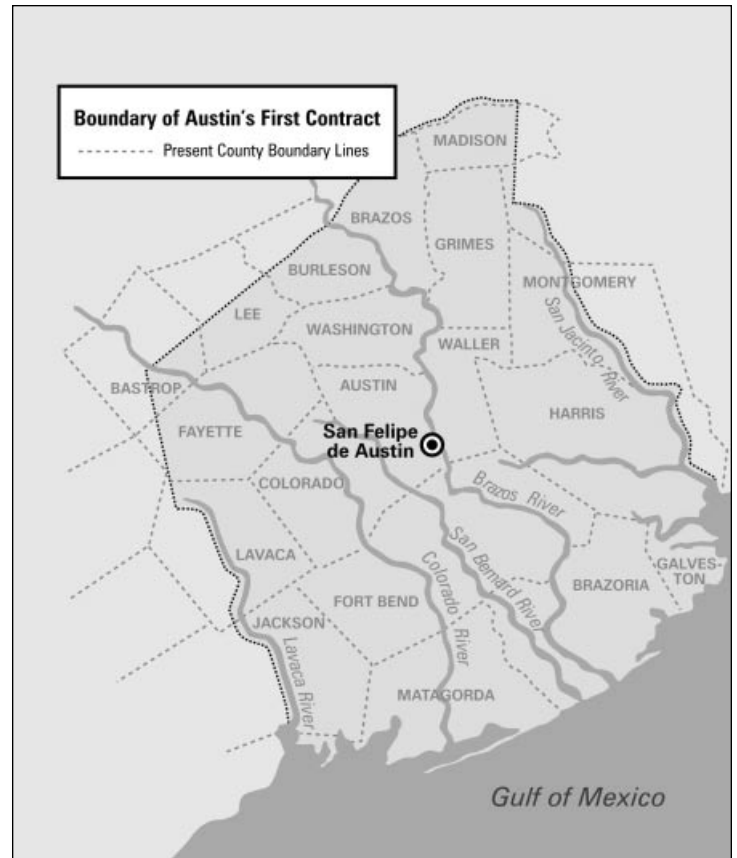


Figure 1. Stephen F. Austin's colony.

Brazos River near the Atascosito Road Crossing (Figure 1). The Mexican governor of the area named the town San Felipe de Austin (Moore 1929:15). In 1824 surveyor Seth Ingram laid out the town on the Mexican model of a grid of avenues and streets, dominated by five public areas: Commerce Square, Constitution Square, Military Square, Campo Santo (the cemetery), and the Hospicio (house of charity), as shown in Figure 2 (Cantrell 1999:149; Moore 1929:18–19).

The new town was prosperous. It was linked to the rest of the colony by eight roads extending in all directions (Moore 1929:41–43), and cotton plantations filled the surrounding countryside. One of the first settlers had established a ferry at the Brazos River crossing (Moore 1929:18), and steamboats docked at a landing on the edge of Commerce Square. By 1827 businesses in colonial San Felipe de Austin included taverns, a hotel, several stores, a newspaper office, and a blacksmith (Smithwick 1900:40). A brickyard was established by 1830 (Barker 1918:78–79), and a grist and lumber mill were constructed a few miles north of town (Kuykendall 1903:53; Smithwick 1900:52). In 1834 a traveler noted two taverns, four or five stores, and a courthouse (Parker 1835:174–175). By 1835 a few brick houses had been constructed (Castañeda 1925:199). By February of 1836 the town consisted of approximately 45 buildings with a population of approximately 600 people (Brister 1999:353). Three steamboats made trips up the Brazos during periods of high

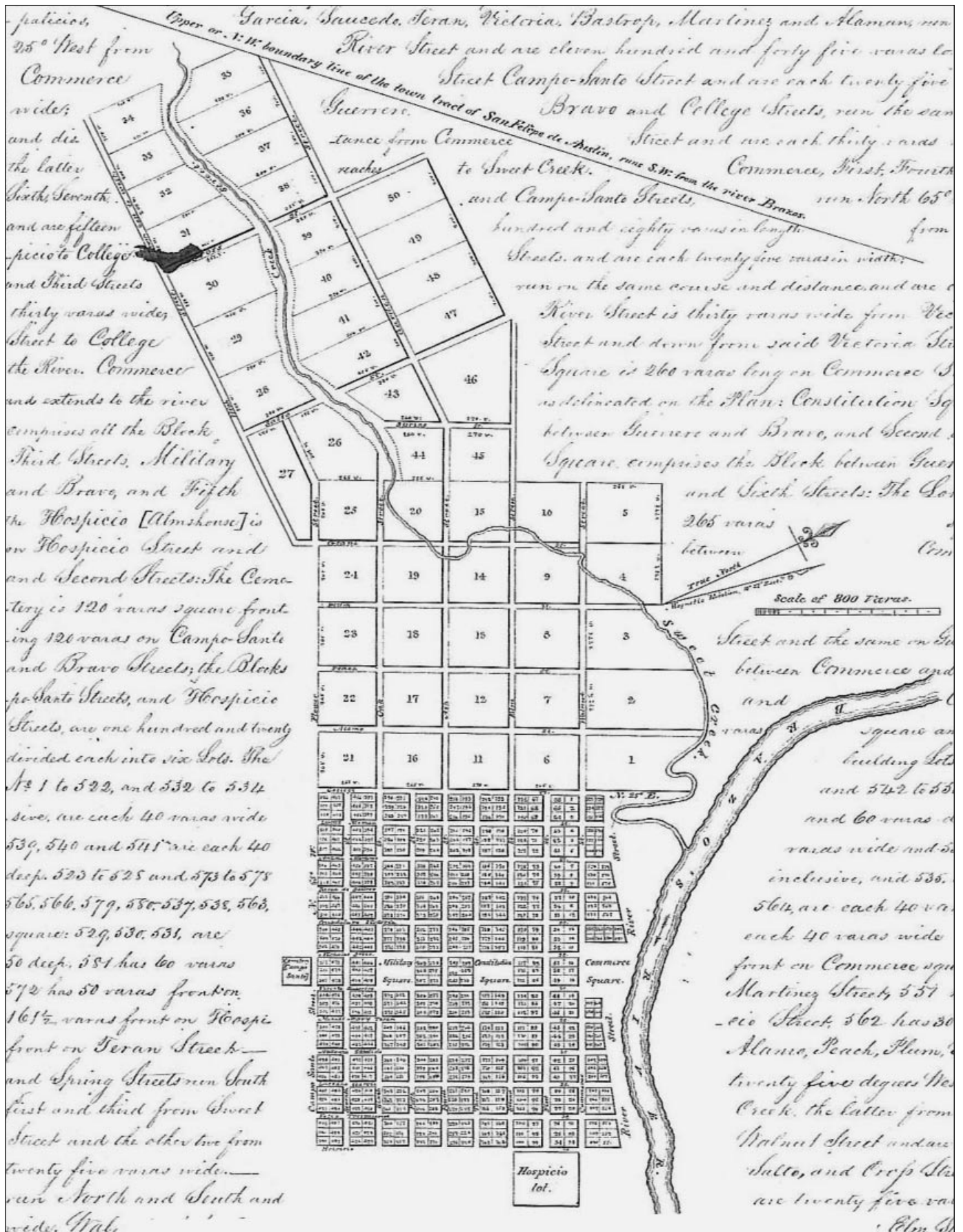


Figure 2. Plat of San Felipe de Austin, 1823.

water (Castañeda 1925:204; Moore 1929:26–28). San Felipe de Austin was second only to San Antonio in commercial trade (Haskew 1969:30).

Activities in San Felipe de Austin during the colonial era (1824–1836) proved to be very significant to the course of Texas history. The town hall was the scene of meetings of the *ayuntamiento*; the Conventions of 1832 and 1833; and the Consultation of 1835. It also served as the seat of the provisional government of Texas in early 1836. It was only *after* Mexican forces entered Texas in an effort to crush the rebellion that the government was moved upriver to Washington-on-the-Brazos.

During the War for Texas Independence, the Texan army retreated from Gonzales to San Felipe de Austin following the fall of the Alamo in the spring of 1836. Sam Houston's Texan forces camped in San Felipe de Austin on March 26 before continuing north to Groce's Plantation. Houston left a rear guard of about 100 men at San Felipe de Austin with orders to burn the town and defend the crossing if the Mexicans were sighted. Burning the town would prevent the Mexicans from camping comfortably and seizing the colonists' property (King 1981:80). By this time most of the residents had fled, abandoning the town in what is called the "runaway scrape" (Moore 1929:153).

The town of San Felipe de Austin was burned on March 31, 1836. All buildings were set on fire with their contents intact, and it was reported that a "large amount of goods were destroyed by this fire" (Kuykendall 1903:41). A week later the Mexican Army, led by General Ramirez y Sesma, entered San Felipe de Austin and found "only the ashes of what had been a town" (Kuykendall 1903:43). The chimneys of the burned houses remained standing as "truncated pyramids," and "great heaps of broken china" indicated where the storerooms had been (Perry 1975:105, 106). It was said that more than "fifty factories, full of objects of great value" were lost because the warehouses had been locked and set on fire (Perry 1975:112).

The Texas rear guard established itself behind a redoubt on the north bank of the Brazos. The Mexicans dug a trench on the south bank, installed two six-pound cannons, and fired on the Texans. During the engagement the Texans lost one man — San Felipe citizen John Bricker — and the Mexicans lost two soldiers and a mule driver. The Texan forces successfully held the river crossing, and the Mexican troops were forced to travel downstream to cross the Brazos River at Fort Bend (Castañeda 1928:173; Hoff 1938:12), thereby giving Sam Houston additional time to prepare his forces, which culminated in a Texas victory at San Jacinto on April 21, 1836.

Within six months after the war ended a few little shanties had been erected at the burned town site (Greer 1928:147). In 1837 the town was incorporated as San Felipe (pronounced *San Fillup*) and was made the seat of Austin

County. Only a few of the original citizens of San Felipe de Austin returned to San Felipe, and most of those who did return chose to build on the prairie rather than on the original town site (Fox and Whitsett 1987:11). During the Republic of Texas era, the old town site was repeatedly described as a deserted village, inhabited by only one or two families. The streets and unoccupied lots were overgrown with weeds and brush (Hollon and Butler 1956:181). Shortly after Texas' annexation to the United States, San Felipe was described as consisting of five or six miserable, dilapidated log and frame buildings (Roemer 1849:77; Suthron 1846:100–101). The county seat was moved to Bellville in 1846, the railroad bypassed the town site in the late 1870s, and San Felipe continued to decline, never regaining the prosperity and influence of the colonial era.

Research Design

Three years of research and archeological investigations have identified the boundaries of the colonial occupation and demonstrated the significance, cultural integrity, and tremendous research potential of the site. This work has further identified the probable — and in some cases the actual — locations of individual homes and businesses within the colony.

Background research began with a search of the colonial deed records and many other sources to identify the owners of each of the colonial lots within San Felipe de Austin (Figure 3). The colonial deed records are incomplete. Some of the sources, however, provide descriptions of structures and other amenities located on specific lots.

The town site of San Felipe de Austin was divided into 582 town lots and 50 garden lots (Figure 2). Information contained in the Austin County deed records indicates that the "square" garden lots (Numbers 6 through 25) were each 12 acres in size. It may therefore be extrapolated that the town site was divided into three-acre blocks with six half-acre building lots per block. Most of the building lots measure 40 by 60 varas (34 by 51 m).

To date, archeological investigations have concentrated on two large parcels of land owned by two separate families and located to the north and south of FM 1458 (Figure 4). Permission has been received from other landowners to conduct investigations on smaller parcels of property, and these areas will be investigated later this year.

Professional surveyors located the corner of each historic block (set of six lots). Each corner, when possible, was permanently marked with an aluminum cap and rebar set in concrete. Each aluminum cap is marked with the site and corresponding colonial lot number and serves as the permanent site datum for each area. Each of the individual lots within each block was delineated using a tape and transit and marked with wooden stakes.

A series of eight evenly spaced shovel tests was excavated on most of the colonial lots within the project area.

Figure 3. San Felipe de Austin colonial lot ownership (draft).

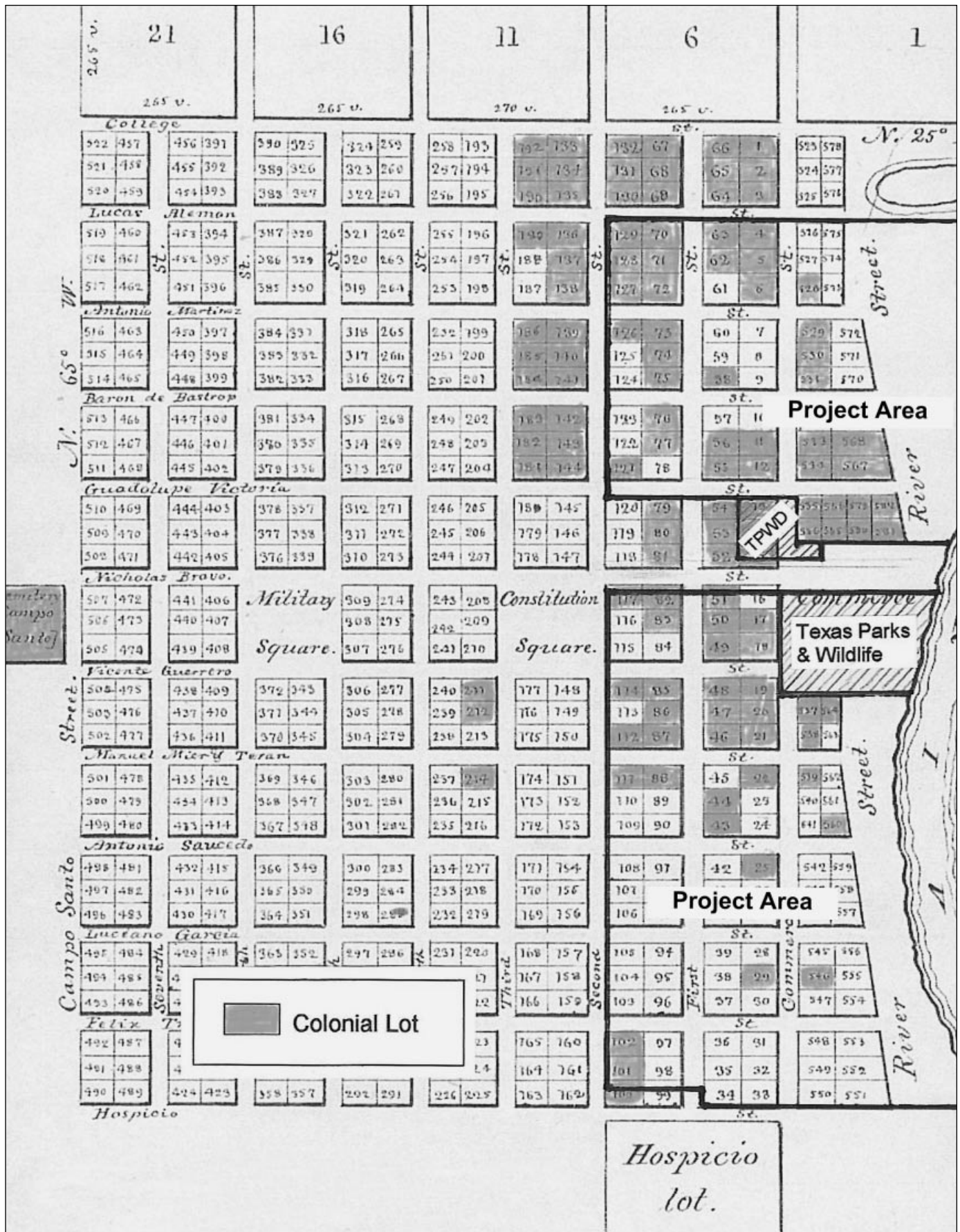


Figure 4. Site 41AU2 project areas.

Areas exhibiting a lower potential for colonial deposits were investigated by a series of four evenly spaced shovel tests down the center of the lot. Shovel testing has identified which lots have colonial deposits, and in some instances, the locations of specific colonial features. Lots were selected for further investigation on the basis of the results of shovel testing and archival research, as well as vulnerability to erosion.

The THC conducted a magnetometer survey of selected portions of the site. Magnetometer readings were taken on Lots 16, 17, 18, 49, 50, 51, 82, 83, and 84. Several possible features were delineated; however, a large amount of metal was present on Lots 49, 50, and 51, making it difficult to interpret the readings. A second set of magnetometer readings was taken on Lots 85, 86, 87, 112, 113, and 114. Numerous anomalies were exhibited on Lots 87 and 112, which is where William Williamson's carpenter shop was located.

Phase II archeological testing further investigated areas with the potential for significant colonial deposits. To date, Phase II testing has been conducted on Lots 11 and 12, which were owned by the Cheeves estate; Lot 530, owned by the Peyton family; Lots 49 and 50, owned by G.B. Cotton; Lot 82, owned by Jane Wilkins; Lot 84, owner unknown; and Lot 87, owned by William Williamson (Figure 3).

Results of Investigations

Phase II archeological testing on Lots 11 and 12 located trash pits associated with the Cooper and Cheeves Tavern and Billiard Room. This was the only frame structure in San Felipe de Austin (Smithwick 1900:48). Copious amounts of broken dishes, bottles, fauna, and other materials were recovered, including charred botanical remains and fossilized mammoth bones (Figure 5). Historical sources state that some of the colonists found mammoth bones on the Brazos River and brought them back to San Felipe de Austin to show them to Stephen F. Austin (Jackson 2000:59). Townspeople also discovered fossilized bone when the town well was dug (Ohlendorf et al. 1980:322).



Figure 5. Mammoth bone from Lot 12.



Figure 6. Transferware plate from Lot 11.

Large numbers of butchered animal bones were recovered, consisting primarily of cow and pig remains. Noah Smithwick (1900:51) states that Martin Varner raised hogs in the river bottom, and colonists could simply shoot a hog whenever they wanted pork. Burned peach pits were also recovered. De la Peña (Perry 1975:106) mentions walking through peach orchards on his way to San Felipe de Austin.

Other notable items recovered from the trash pits on Lot 12 included gunflints, clay smoking-pipe bowls, a padlock, half a pair of scissors, a fork, and a bone-inlaid pocketknife. A nice array of ceramics was recovered from a trash pit on Lot 11, including an edgeware serving platter; a portion of a red transferware sugar bowl; fragments of a hand-painted cream pitcher; an annularware cup with cable design; and a virtually complete transferware plate (Figure 6). Transferware plates with this design were also recovered from Old Velasco. The pattern is "Virginia," the scene is "strolling through the willows," and it was manufactured by James and Ralph Clews between 1815 and 1834 (Pollan et al. 1996: Plates 4, 84).

Excavations on Lot 534 uncovered the base of one of the two fireplaces in Peyton's Tavern (Figure 7) and the structure's basement. The base of the fireplace was made of brick, and because the soils at San Felipe de Austin are sandy, the colonists dug down through the sand and set the base of the fireplace on the underlying clay. The base is perfectly level: there is less than a half-inch difference in elevation between the corners.

A unit to the north of the fireplace base extended to a depth of more than 5 feet, indicating that the tavern had a basement. The fill contained many artifacts, including fragments of numerous dishes and wine bottles, a seal from a French Bordeaux bottle, bone and shell buttons, a brass thim-



Figure 7. Lot 534, base of fireplace in Peyton's Tavern.

ble, a porcelain doll's leg, two leather shoe heels, and a bone-handled table knife. The recovered ceramics included edge-ware platters, half of a hand-painted bowl, and a large fragment of a German mineral water bottle.

The historical documents indicate that G.B. Cotton had a home and newspaper office on Lots 49 and 50. Excavations currently underway on Lot 50 have uncovered a large plaster-lined cistern. The cistern measures approximately 10 feet in diameter by an estimated 12 feet in depth. The lower part of the cistern was constructed by applying plaster directly onto the underlying clay surface. The portion of the cistern above the clay layer was not intact but appeared to have been constructed with handmade brick and plastered internally. Within the center of the plaster-lined cistern were the remains of a large wooden barrel (Figure 8). The barrel measured 6 feet in diameter at the top and 6 1/2 feet in diameter at the bottom by approximately 4 feet deep. It was constructed with wooden staves held together by four large iron bands spaced approximately 13 inches apart.

Fill within the cistern contained mainly brick, early colonial artifacts, flakes, and Native American pottery. The wooden barrel was densely packed with artifacts and charcoal, indicating that it became a trash receptacle after it fell into disuse. The stratigraphy and the artifacts recovered from these two features allow us to interpret them as follows. The large plaster-lined cistern is most likely colonial in origin. G.B. Cotton owned a newspaper office and would have needed a large amount of water for his newspaper business. At some later period in time, the large plaster-lined cistern was renovated by partially filling it with soil and placing the large wooden barrel in the center to hold water. Later, the wooden-barrel cistern was abandoned and intentionally filled with trash during the 1840s Republic of Texas era.

There is also evidence of a Native American presence at the site. We have recovered a number of lithic flakes and pottery sherds from the lots near the river, including one Bell



Figure 8. Lot 50, cistern with wooden barrel.

point. The environment along the Brazos River was favorable for habitation, and Native Americans probably lived in the area throughout prehistory. However, we also have historical accounts of Native Americans coming into San Felipe de Austin to trade (Anonymous 1834:249–251).

Conclusions

The San Felipe de Austin Project is currently in its third season of excavation, and we hope that the project will continue for many years to come. Site 41AU2 is extremely large, and finding the exact location of a colonial structure on a half-acre parcel is not often easy. Yet excavations to date have demonstrated the integrity and tremendous research potential of this very important colonial Texas site. Significant portions of the site have been lost to erosion, and other portions are extremely endangered. It is therefore imperative that we excavate the endangered portions of the site before they are gone. The San Felipe de Austin Project also strives to protect the privately owned portions of the site through public education and the development of tourism in the area. It bears repeating that San Felipe de Austin is just as significant to Texas history as Goliad, San Jacinto, the Alamo, and Washington-on-the-Brazos, yet little has been done to study or preserve this important site. We hope this project changes that.

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Announcement for Contractors from TxDOT

The Texas Department of Transportation (TxDOT) Environmental Affairs Division maintains a mailing list of archeological contractors. Individuals and firms on this list receive notices of upcoming requests for proposals (RFPs) and requests for letters of interest in TxDOT RFPs. If you are not currently receiving notices of upcoming RFPs for archeological services from the Environmental Affairs Division and would like to be added to the list, or if you would like to update your information, email your name, mailing address, phone number, and preferred email address to Ernest Lamey, elamey@dot.state.tx.us. If you would like to be removed from the list, email that information to the same address.

Testing at 41AS5 on Swan Lake, Central Texas Coast: A Summary of the Human-Ecological Implications

by Robert A. Ricklis and Bruce M. Albert

In the spring of 2004, Coastal Environments, Inc. conducted testing at the west end of site 41AS5, located on the north-west shore of Swan Lake in Aransas County, Texas. Swan Lake is a secondary bay connected to Copano Bay, one of several large bay estuary systems on Texas' central coast. This work was intended to assess eligibility of the site for inclusion in the National Register of Historic Places, as well as to determine if the site had potential to elucidate how prehistoric hunter-gatherer-fisher populations responded to a dynamically changing coastal environment during the Holocene. The local shoreline is bordered by low clay dunes, eolian cumulic deposits that tend to contain clear stratigraphies of layered clay and silty clay with high vertical integrity that is well suited to the acquisition of chronological data.

Our fieldwork involved the excavation of two 2 x 2 m hand-excavated units and three backhoe trenches (see Figure 1). The hand-dug units were excavated with small hand tools, and the recovered sediments were screened through 1/4-inch and 1/8-inch mesh hardware cloth. The backhoe trenches were dug in order to expand information on the geologic stratigraphy at the site.

An additional aspect of work was the extraction of sediment cores from the basin of nearby Swan Lake to obtain a sequence of radiocarbon-datable samples from which fossil pollen could be extracted. The resulting environmental reconstruction would shed light on issues of sea-level change in the Swan Lake estuary. Since sea-level dynamics had a fundamental influence on estuarine biotic productivity, they also strongly influenced the adaptive decision making of the region's prehistoric peoples (see Ricklis and Cox 1991; Ricklis 1995a, 2004; Ricklis and Blum 1997).

Stratigraphy

Although the stratigraphy varied among units and trenches, the wall profiles of 2 x 2 m Excavation Block A (see Figure 1) are reasonably representative of the site.

Stratum I consisted of a dark gray to dark grayish brown (Munsell 10YR4/1-10YR4/2) silty clay approximately 50 cm thick (0–50 cm depth from the ground surface). It was largely sterile of cultural material or debris.

Stratum IA was designated as that part of Stratum I that immediately overlaid the archeologically relevant Stratum IB, discussed below.

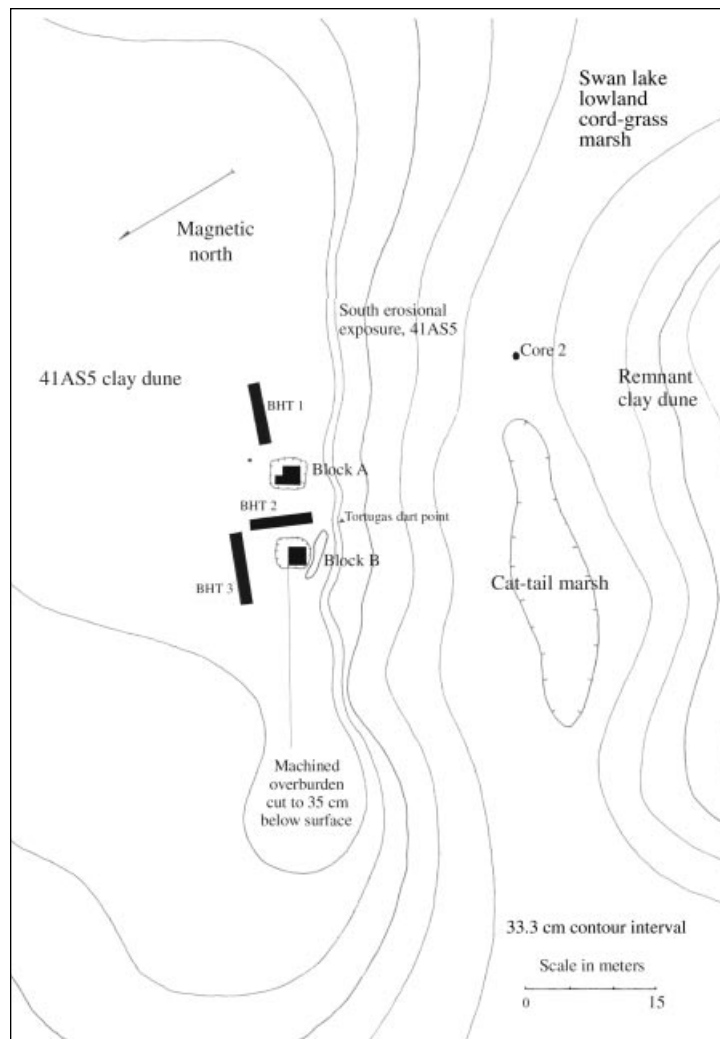


Figure 1. Map of site 41AS5 project area showing topography, excavation units, and Core 2, from which pollen samples were extracted.

Stratum IB consisted of a thin (2–3 cm thick) zone of the same dark gray silty clay of Stratum I, but unlike Stratum I it also contained a relatively high concentration of anthropogenic, archeological debris, mainly in the form of whole and (mostly) fragmentary estuarine shells. The shell species represented are bivalves and gastropods. The bivalves include oyster (*Crassostrea virginica*), sunray Venus (*Macrocallista nimbosa*), and bay scallop (*Argopectin irradians*). The gastropods include lightning whelk (*Busycon perversum*), Tulip (*Fasciolaria illium*), and shark eye (*Polinices duplicatus*). Also

present in this stratum were whole and fragmentary shells of *Rabdotus* land snails.

Stratum II was a pale brown silty clay, 4–10 cm thick, that was almost devoid of archeological materials. Sparsely present were *Rabdotus* shells and a few fragments of sunray Venus clamshell.

Stratum IIIA consisted of dark gray (10YR3/1–10YR3/2) silty clay, 5–8 cm thick, containing scattered bits and flecks of charcoal, *Rabdotus* shells, and scattered fragments of sunray Venus shell.

Stratum IIIB was a pale brown silty clay largely lacking archeological materials. This stratum was 7–17 cm thick; the range resulted from undulations in the top and bottom of the stratum.

Stratum IIIC was similar to IIIA in that it had a dark gray color (10YR3/1–10YR3/2) and contained abundant flecks of charcoal and *Rabdotus* shells, lightning whelk and sunray Venus clams. In thickness it ranged between 5 and 9 cm.

Stratum IV was a silty clay, pale brown (10YR6/3) in color, at least 20 cm thick. The actual thickness is not known because excavation in Block A was terminated within this stratum at a depth of 76 cm below the surface.

Features

Five features were documented, all in wall profiles in Backhoe Trenches (BHT) 1 and 2. Feature 1 was a possible dispersed hearth, 45 x 90 cm, with a shallow basin-shaped profile and a dark gray ashy fill containing small burned clay nodules, *Rabdotus* shells, and a large lightning whelk (*Busyon perversum*) shell.

Feature 2 was a basin-shaped shallow pit near the east of the north wall of BHT 1. In cross section it was observed to be an arcuate distribution of burned clay nodules, *Rabdotus* shells, and charcoal flecks. This is interpreted as a small, perhaps short-term, storage feature that was filled with debris and soil after it ceased to be used. A complete absence of burning of the inclusive shells suggests that it was not a hearth, though it is possible that it was a hearth basin that was filled with soil and shell debris.

Feature 3 was a dense concentration of crushed *Rabdotus* shells in the east end of the north wall of BHT 1. It had a flattened lenticular profile and measured 8 cm thick by 50 cm long along the trench wall. There was no evidence of in situ burning, and this feature may be a dumped pile of snail shells that were crushed after deposition, perhaps by human treadage.

Feature 4 was a lens of dark gray clay within a lighter clay matrix that contained small burned clay nodules and flecks of charcoal. The charcoal, the burned clay nodules, and the relatively dark color of the fill — perhaps the result of charcoal and ash inclusions — suggest that this feature was a dispersed hearth.

Feature 5 was another basin-shaped anomaly. Its upper edge was at 95 cm below surface, and the bottom was

10 cm below that. The feature rested entirely within the lower stratum in BHT 2, a pale brown silty clay. The fill contained charcoal and a scattering of *Rabdotus* shells and was generally stained a dark gray color (10YR4/1) that contrasted with the surrounding matrix. At its upper boundary the feature was 60 cm in length along the wall profile of the backhoe trench. This feature is interpreted as a small basin-shaped hearth. Charcoal from the fill was submitted to Beta Analytic, Inc. for radiocarbon dating and produced an age of 3100 ± 40 B.P., which calibrates to 3360–3270 B.P.

Artifacts

Lithics. These are four in number, including one chert dart point (Figure 2a) and three chert flakes. The dart point has a triangular outline. It is flaked from a fine-grained dark brown chert and has a length of 53 mm, a width of 29 mm, and a maximum thickness of 5.5 mm. This point is assigned to the Tortugas type (see Turner and Hester 1999). This specimen was a surface find on the eroded margin of the clay dune on the southern edge of the site. It was found still embedded in silty clay matrix at a level immediately below Stratum IIIC as recorded in Block A.

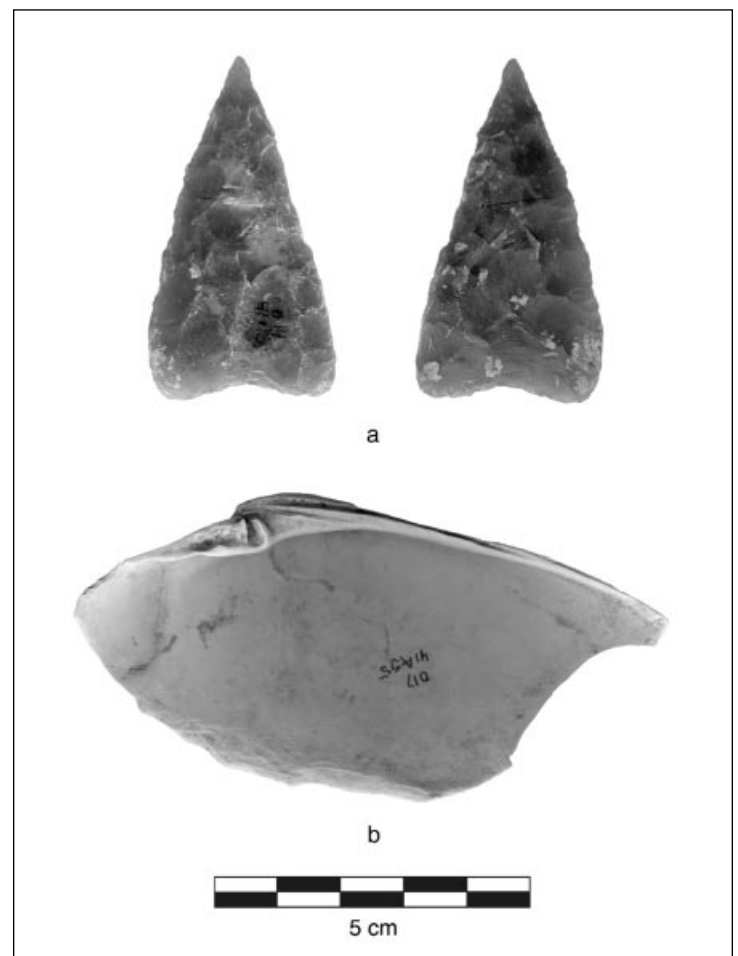


Figure 2. Artifacts from 41AS5. (a) Tortugas dart point (two faces); (b) edge-flaked sunray Venus clamshell tool.

The paucity of lithics reflects the absence of workable stone along the Texas coast. The Tortugas point type is dated to between ca. 5000 B.P. and 2600 B.P. in southern Texas (see Hester 1980; Taylor and Highley 1995). Given that the specimen reported here came from below Stratum IIIC, it may pertain to the occupational episode that left behind shell from BHT 2 with a calibrated age range of 3810–3650 B.P. Although this association is not very tight, this age range does correspond well to the time range expected for the type.

Shell. A single shell tool was found during the test excavations. This is an edge-flaked sunray Venus clamshell knife or scraper (Figure 2b), a common tool type on sites in the central Texas coast area (e.g., Story 1968; Ricklis 1995a, 1996). The specimen reported here, which is 93 cm long, came from Stratum IB in Block A.

Radiocarbon Dates

In order to obtain a chronological placement for the human occupations at site 41AS5, samples were submitted to Beta Analytic, Inc. for radiocarbon dating. A total of nine C14 assays were run, four on shells and one on charcoal from the site, and four on bulk sediment humates from Core 2 in the

nearby Swan Lake basin (see data presented in Table 1, which shows the uncorrected radiocarbon ages, the delta-C13 corrected ages, and the 1-sigma dendrochronologically calibrated age ranges). It should be noted that a marine calibration is not used for the shell dates. Based on data from paired shell-charcoal samples from several Texas coast shell middens, it appears that a standard atmospheric calibration is more appropriate for the shallow Texas estuaries, inferably because the mollusks lived in very shallow water that had an essentially atmospheric level of C14 input (see discussion in Ricklis 1999).

The results are all chronologically coherent in terms of the relative depths of the samples within the site deposits. Thus, lightning whelk shell from Stratum IB produced a calibrated age range of 2740–2500 B.P., sunray Venus from Stratum IIIA produced an age range of 2850–2770 B.P., and sunray Venus from Stratum IIIC yielded a range of 2950–2870 B.P. Samples taken from the wall profile of BHT 2 are likewise in sequential order: charcoal from the small hearth, Feature 5, which was in a pale brown silty clay stratum that is believed to be the equivalent of Stratum IV in Block A, produced a calibrated age range of 3360–3270 B.P., while lightning whelk shells from the matrix into which the hearth was dug yielded an age range of 3810–3730 B.P.

Table 1. Radiocarbon Data from Testing at Site 41AS5

Lab No.	Material	Provenience	C14 Age	13C-Corrected Age	1-Sigma Calibrated Age Range B.P.
Beta-194904	Whelk shell	Stratum IB	2150 ± 70	2560 ± 70	2740–2500
Beta-194905	Sunray Venus shell	Stratum IIIA	2300 ± 50	2690 ± 50	2850–2770
Beta-194903	Sunray Venus shell	Stratum IIIC	2450 ± 70	2810 ± 40	2950–2870
Beta-194897	Charcoal	Feature 5	3100 ± 40	3100 ± 40	3360–3270
Beta-194898	Whelk shell	BHT 2 under F. 5	3040 ± 50	3460 ± 60	3810–3730
Beta-194899	Bulk sediment	Core 2 220–280 cm	3790 ± 40	3920 ± 40	4410–4290
Beta-194900	Bulk sediment	Core 2 80–102 cm	100 ± 50	130 ± 50	250–40
Beta-194901	Bulk sediment	Core 2 420–450 cm	5050 ± 40	5150 ± 40	5940–5790
Beta-194902	Bulk sediment	Core 2 490–515 cm	6100 ± 40	6130 ± 40	7130–6940

No evidence of occupation was found at the site deeper than the whelk shells in the Feature 5 matrix, so it seems reasonable to conclude that the earliest occupation of the site took place around 3800–3650 years ago, in the early part of the Late Archaic period. Subsequently, a series of short-term occupational episodes occurred at ca. 3000 B.P. (Feature 5), 3000–2800 B.P. (Stratum IIIC), 2800 B.P. (Stratum IIIA), and 2700–2500 B.P. (Stratum IB).

The Palynological Findings

A series of 12 sediment samples from a 2 inch diameter, 5.8 m long core taken in the bottom of nearby Swan Lake (location shown on Figure 1) was analyzed by the junior author for pollen to determine proportions of species represented for each sample. Additionally, five sediment samples from Core 2 were submitted to Beta Analytic for radiocarbon dating.

The goal of the analysis was to obtain information on the history of Swan Lake as an estuarine environment in which physical and biotic conditions fluctuated in response to changes in sea level during the period encompassing site occupation. The radiocarbon dates on the core sediments bracket a timeline that begins ca. 7400 B.P. and ends in recent historic times. Significant fluctuations were found in salt-tolerant aquatic (marsh) species such as the *Chenopodiaceae* (see Figure 3), and it is inferred that periods in which these plants were relatively abundant in the Swan Lake environment reflect marine transgression and attendant rise in salinity associated with sea level rise or highstand. Alternatively, these periods may have been marked by sea-level stillstands during which the climate was relatively dry (thus reducing freshwater input into the bay) or when barrier islands had not yet formed offshore, allowing greater marine influence into the bay than if such barriers were present and fully developed.

The latter seems a distinct possibility for the early (ca. 7400–7000 B.P.) spike in *Chenopodiaceae* during a period in which abundant shell-midden formation at some sites in the region suggests stable and exploitable estuarine conditions (e.g., Ricklis and Blum 1997).

For "Pollen Zone 2," it is suggested that low representation of *Chenopodiaceae* represents a sea-level stillstand during which marine influence was significantly mitigated by freshwater discharge into coastal bays. This is completely in accord with ecological evidence derived from archeological sites in the region that strongly suggest high estuarine biotic productivity and an abundance of low-to-moderate-salinity mollusks in the bays (e.g., Ricklis 1995b).

Somewhat later, ca. 4900–4250 B.P. (Pollen Zone 3), a major spike in halophytic vegetation is interpreted as evidence for rising sea level or highstand. This accords with earlier interpretations that suggest a major reduction in human shoreline occupation and estuarine resource use by ca. 4500 B.P. as a response to destruction of productive and exploitable high-biomass shallows by rapidly rising sea level (Ricklis 1995a; Ricklis and Blum 1997).

The data for Pollen Zones 4 and 5 suggest that stillstand conditions were reached by ca. 3750 B.P. and continued at least until ca. 3000 B.P. It has generally been recognized that modern stillstand was reached on the Gulf of Mexico by around 3,000 years ago (e.g., Frazier 1974; Ricklis and Blum 1997; Balsillie and Donoghue 2004). If, in fact, this stillstand dates to as early as ca. 3750 B.P., then the entire occupation sequence at site 41AS5 can be related to the emergence of essentially modern estuarine conditions under the modern stillstand regime that entailed expansion of high-productivity shallows behind the protection of the mature barrier island system.

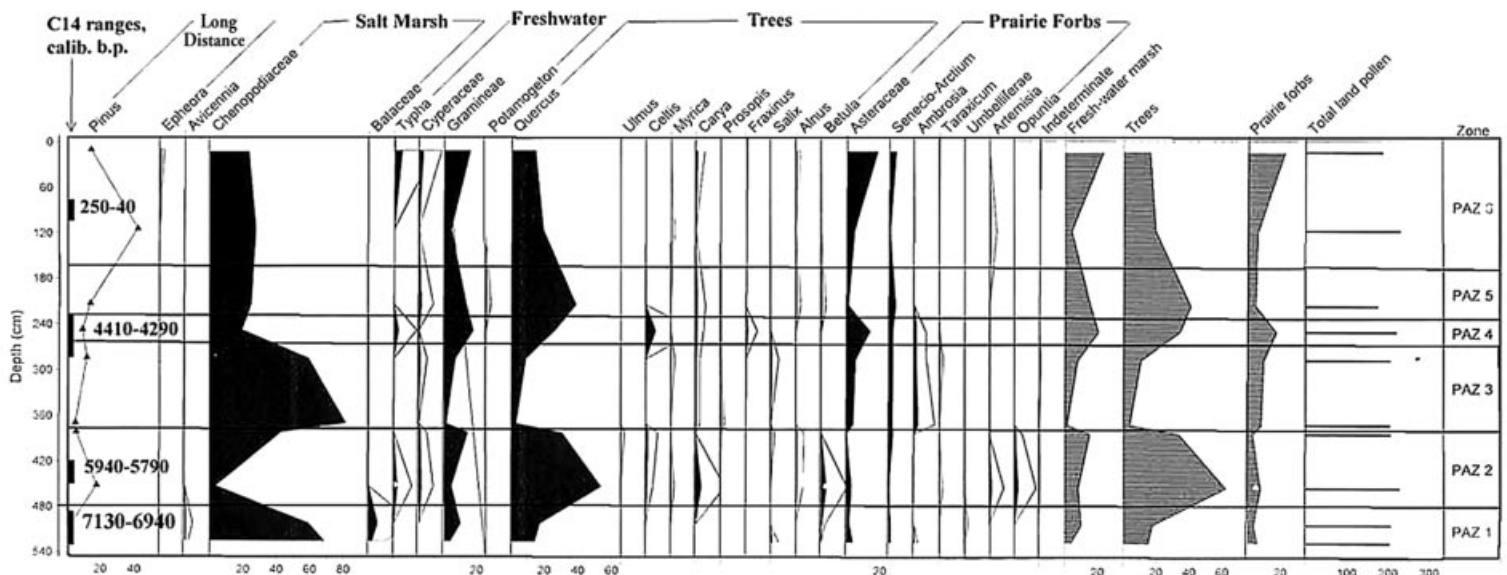


Figure 3. Pollen diagram based on analysis of pollen samples from Core 2, site 41AS5. Note calibrated radiocarbon dates from various depths in the core along left side of the diagram; Pollen Zones are listed numerically as PAZ in the right-hand column.

Conclusions

The stated goals for testing at site 41AS5 (Ricklis 2004) were to identify strata in the clay dune matrix that represented periods of prehistoric human occupation, to obtain radiocarbon dates to place those occupations within the regional culture chronology, and to find ecological data with which to test ideas about the nature of the exploitable environment as related to sea level fluctuations. It was posited that sea level may have been at a highstand during occupation, since this end of Swan Lake is presently slightly above sea level and since this presumably was not the case in the past if fish and shellfish were being harvested nearby and brought onto the site.

All these goals have been achieved, though with some results that diverge from expectations. A clear series of occupational episodes have been stratigraphically identified and can be placed within a chronological sequence based on the radiocarbon data. The initial occupation at the site apparently took place around 3,700 years ago, judging from a calibrated age range of 3810–3650 B.P. on lightning whelk shells from the lower, pale-brown silty clay stratum in BHT 2. Clearly, the high-salinity gastropod lightning whelk was gathered, presumably as a food resource, at this time. No other data can be cited for this period, with the possible exception of the use of the Tortugas-type dart point, one of which was found in the eroded dune margin in matrix pertaining to this same sedimentary stratum.

Several centuries later, the small hearth in BHT 2, Feature 5, was built and used; a charcoal sample from this feature provided a calibrated age range of 3360–3270 B.P. There is an absence of associated information on this occupation, though the fact that no anthropogenic sediments (i.e., middens, or ashy soil layers) were associated with the feature strongly suggests a very short-term and limited occupation of the site at this time.

Three stratigraphically higher occupation episodes are indicated in Block A. Strata IIIA and IIIB were both thin layers of charcoal-and-ash-stained sediments that contained limited quantities of shell, mainly sunray Venus fragments, and a number of small unidentifiable fragments of faunal bone. Four fish vertebrae and three fish otoliths (from two marine catfish and one sea trout) were found in Stratum IIIC. Thus, procurement of estuarine food resources, as well as some amount of hunting of terrestrial animals, are indicated for these strata, which date, respectively, to 3020–2840 B.P. and 2850–2770 B.P.

Finally, Stratum IB, which was explored in both Blocks A and B, yielded a relatively wide range of shell species. The most abundant was, again, sunray Venus, with scallop also fairly well represented, along with a variety of gastropods that include lightning whelk, shark eye, and Tulip. This is the only stratum that yielded the usually far more abundant oyster. Fish remains, in the forms of a vertebra and a black drum otolith, were also present, as well as a deer phalange and 11

unidentified small bone fragments. *Rabdotus* land-snail shells were also relatively abundant, and it is possible that this snail was used as food at the site at this time (as opposed to the shells merely representing natural deaths of snails at the site). In short, Stratum IB (2740–2500 B.P., calibrated) produced evidence for the widest and most varied range of food procurement strategies of any stratum investigated, and this may reflect the relative biotic maturation of the nearby Swan Lake estuary by ca. 2700 years ago, in keeping with the emergence of intensive estuarine resource exploitation at this time at much larger shell-midden sites on nearby Copano Bay and site 41AS16 (Prewitt et al. 1987).

In sum, the site appears to have been sporadically and recurrently occupied between approximately 3,800 and 2,500 years ago for short periods of time by small groups. At no point was occupation intensive, given the minimal amounts of anthropogenic debris that accumulated in any archeological stratum. Hunting of game, gathering of shellfish, and fishing were consistently carried out as subsistence activities.

Occupations do not appear to have taken place during sea-level highstands. The geological and geoarcheological evidence suggest that the radiocarbon ages of the pertinent strata do not fall into periods of highstand. Those periods are believed to have been at the end of the middle Holocene, ca. 4500–4000 B.P. (Ricklis and Blum 1997), and again around 1500–2000 B.P. (see Ricklis and Weinstein, in press), whereas the occupations at site 41AS5 date after ca. 3700 B.P., when sea level was at or near its present position (as also suggested by the pollen data obtained in the present project).

The overall dearth of stone artifacts may be attributed to the considerable distance of site 41AS5 from any source of workable chert, in addition to the generally limited activities that seem to characterize occupations here. The nearest known source of chert is Pliocene gravel exposed along the Nueces River some 60 km inland (Ricklis and Cox 1993).

The two calibrated radiocarbon age ranges in the second millennium B.C. represent a time period for which other data indicate relatively minimal occupation of the Central Texas coast (Ricklis and Cox 1991; Ricklis 1995a; Ricklis and Blum 1997). The fact that there are relatively few dated occupations between 4000 and 3000 B.P. has been attributed to the ecologically disruptive effects of unstable and perhaps rising sea level at this time. If this were in fact the case, it is possible that the location of site 41AS5 at the inland margin of a small secondary bay system may have been less vulnerable to such effects than the broad shallows of the larger, more seaward bays. It may be significant that the only shell species found from this time period is the high-salinity lightning whelk — it is possible that highstand or rising sea level at this time involved marine transgression and attendant high estuarine salinity that would be conducive to whelk survival but probably detrimental to the viability of oyster, scallop, and other moderate-salinity bivalves.

The three later occupation strata, in Block A — Strata IB, IIIA, and IIIC — all pertain to the ca. post-3000 B.P. period recognized to have seen markedly increased and intensive coastal occupation due to stabilization of modern sea level and formation of the modern protective barrier islands and establishment of extensive, biotically high-productivity estuarine shallows (Ricklis and Blum 1997). These strata date to between 2950 and 2500 B.P., a time when major, intensively occupied shell-midden sites such as Kent-Crane on Copano Bay and Mustang Lake near San Antonio Bay (Ricklis 1996) were initially occupied for fishing and intensive shellfish gathering. Large shell middens such as these, and others, are believed to be the Late Archaic prototypes of Late Prehistoric “Group 1” sites, which are interpreted to represent seasonal fishing base camps where large groups or “macro-bands” congregated seasonally (Ricklis 1992, 1996). The small, short-term occupations, presumably by small groups, represented at site 41AS5 are in contrast to such major campsites, and may in fact represent either splinter groups who separated from the main population for some reason, perhaps as “overflow” from crowded base camps, or perhaps to perform special tasks such as hunting. The latter possibility may be supported by the site’s location in a bay-head area in close proximity to prairie uplands where deer and other game could have been relatively abundant. If this was the case, it is clear that the nearby Swan Lake was, to a limited degree, exploited for fish and shellfish as well.

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Governmental Agency: San Patricio County Water District.
Contracting Archeologists: Coastal Environments, Inc.
Principal Investigator: Robert A. Ricklis
Project Palynologist: Bruce M. Albert

Data Recovery at Site 41HM51, Hamilton County, Texas

by Karl W. Kibler and Cory J. Broehm

The Texas Department of Transportation (TxDOT), Environmental Affairs Division, sponsored survey, testing, and data-recovery projects at site 41HM51 in advance of construction of a new bridge on CR 294 over the Leon River in Hamilton County. The data-recovery excavations, summarized here, were conducted under TAC Permit No. 3405.

Site 41HM51 is located on a late Holocene terrace of the Leon River, the surface of which is divided into T1a and T1b components by a scarp approximately 1 m in height. Alluvium below the T1b surface is laterally inset to and draped over an older unit below the T1a surface. A cumelic soil or paleosol, the top of which is 60 to 200 cm below the T1a surface, caps the older alluvial unit. Site 41HM51, identified through trenching during survey in November 2003 (Kibler 2003), is situated on top of, and within the upper portions of, the paleosol. The buried soil is similar to the Leon River paleosol identified downstream at Fort Hood (see Mehalchick et al. 1999) in its pedogenic character and geomorphic context. The Leon River paleosol, yielding humate ages of 1160 ± 40 B.P. and 1010 ± 70 B.P., contains discrete Late Archaic and Austin phase assemblages (Mehalchick et al. 1999:215, 268; Nordt 1992). The similarities between the two soils, particularly their cumelic nature, suggested that site 41HM51 had the potential to yield discrete assemblages or components. It was deemed potentially eligible for listing in the National Register of Historic Places and designation as a State Archeological Landmark, and subsequent test excavations took place in December 2003 and January 2004.

Test excavations involved the mechanical stripping of the recent alluvial drape to the top of the paleosol and subsequent placement and hand excavation of test units within the stripped areas or trenches. These investigations recovered one Ensor dart point, five Perdiz arrowpoints and other arrowpoint fragments, a small number of other chipped and groundstone tools, chert flakes, a few modified pieces of bone and mussel shell, vertebrate faunal remains, freshwater mussel shells, and burned clay and rocks from feature and nonfeature contexts. Of special note were five pottery sherds, all appearing to be from the same vessel and of the same type: Bullard Brushed, a Late Caddo type that is known from Central Texas as a trade ware (Suhm and Jelks 1962:21). Seven features were identified, representing shallow basins with burned rocks, ash, and charcoal; hearth or boiling stone

dumps or discard piles; and a mussel shell cluster. Five radio-carbon ages on wood charcoal from four of these features, all from the paleosol surface, produced date ranges (2-sigma) falling between A.D. 1300 and 1640.

The testing results showed that site 41HM51 was an open campsite that consisted of two identifiable components: (1) a Late Prehistoric Toyah phase occupation at the paleosol surface and interface with the overlying recent alluvial drape; and (2) a terminal Late Archaic occupation 70 to 90 cm below the top of the paleosol. The Toyah phase occupation, based largely on its artifact content and superb contextual integrity, was judged to have the capacity to produce additional valuable data. The site was recommended as eligible for listing in the National Register of Historic Places and designation as a State Archeological Landmark, and as such, warranted data-recovery excavations (Broehm et al. 2004:35–36).

Data-Recovery Investigations

Data-recovery excavations began in April and ended in July 2004. These excavations focused solely on the Toyah phase occupation, the debris of which rested on the surface of the paleosol. Excavations consisted of machine stripping the more recent alluvial drape to within approximately 30 cm of the top of the paleosol over an approximately 256 m² area between Backhoe Trenches 7 and 9 from testing (Figure 1). Two additional trenches were excavated south of this area, again to within 30 cm of the top of the paleosol. Within the stripped area and two new trenches, the hand excavation of 60.1 m³ in the form of 155 1 x 1 m excavation units (153 contiguous units in the stripped area) took place. From the surface of the stripped area the hand excavations extended on average 20–30 cm into the paleosol.

Results of Data-Recovery Excavations

Artifacts and Other Materials. Excavations recovered 63 projectile points or projectile point fragments, 60 of which are arrowpoints, including fragments and preforms. The vast majority of these are Perdiz. Other chipped stone tools include 266 bifaces (including beveled knives), unifaces (including end scrapers), and edge-modified flakes. Four cores and approximately 6,265 pieces of chert debitage also were recovered. A cursory examination of the debitage shows that it largely consists of small-to-medium-sized flakes, representing late stage reduction and tool manufacture from small cobbles, and possibly some tool maintenance. Included in the debitage and tool assemblage are six pieces of obsidian, all of which macroscopically appear to be from the same source. The pieces include four small resharpening flakes, an arrowpoint medial fragment (cf. Perdiz) and the distal end of the former arrowpoint fragment. Fifteen groundstone tools and tool fragments and 44 pottery sherds were recovered.

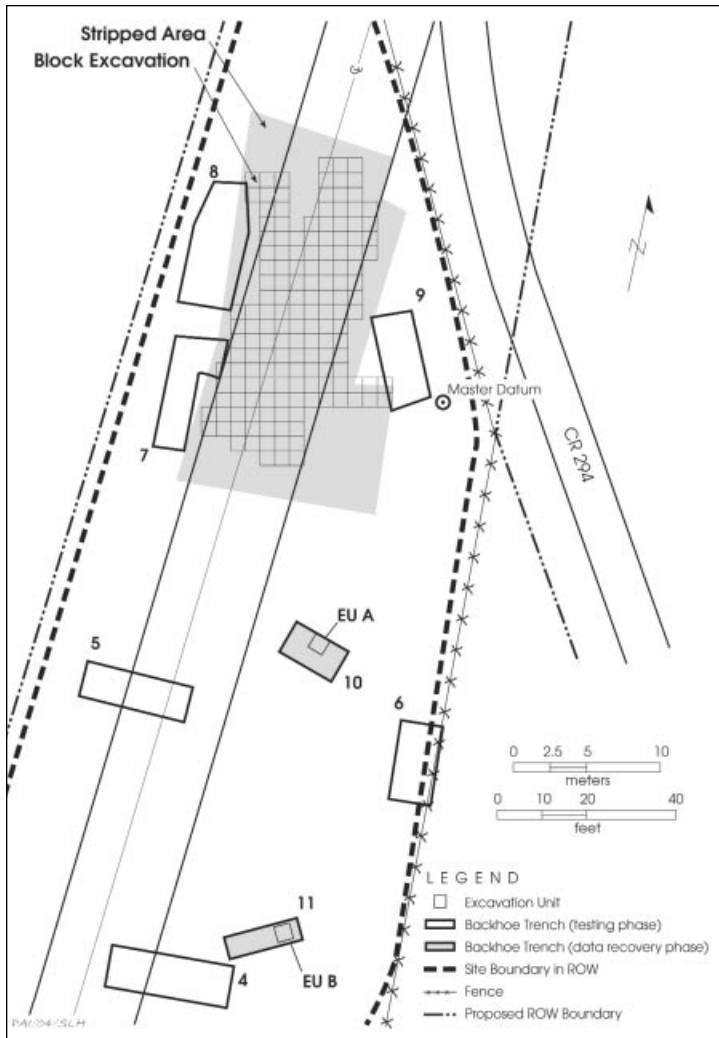


Figure 1. Plan of site 41HM51 showing locations of data-recovery excavation block and backhoe trenches in relation to testing trenches.

Based on preliminary observations, all appear to represent Late Caddoan style vessels, including a brushed ware (cf. Bullard Brushed) and an untyped, slightly burnished ware. At this point no bone-tempered pottery has been identified. Eleven modified bones were recovered from site 41HM51. These specimens include modified pieces of deer antler as well.

Approximately 5,203 vertebrate faunal remains were recovered. The specimens are generally fragmentary. Bison constituted a large portion of the identifiable taxa. The bison elements include ribs, metapodials, and scapulae. Typically these are nearly complete, showing minimal damage. Fewer primary elements (long bones) are present. Typically these consist of the ends of the bone only, with shafts partially present or only present as fragments. Bones from small- and medium-sized mammals, and deer, are also present, as are fish vertebrae. Approximately 715 freshwater mussel shell umbos also were recovered. Macrobotanical remains recognized in the field consisted almost solely of charred wood from nine features. Flotation of feature matrix samples (92 liters collected) should yield more remains.



Figure 2. (a) bison-bone concentration (Feature 2); and (b) basin-shaped hearth (Feature 1).

The nine features consist of two shallow basins filled with burned rocks and charcoal; a cluster or dump of hearth or boiling stones; an ash and oxidized sediment lens (informal fireplace?); a cluster or dump of broken tools and burned rocks, flakes, and bones; a cluster of bison bones (ribs and metapodial); a cluster of deer elements (calvarium with antlers, two mandibles, and lower leg elements); a cluster of flakes or knapping debris; and a mussel shell scatter (Figure 2).

Artifact and Feature Distributions. The Toyah component, resting on the surface of the paleosol and the focus of the data-recovery excavations, accounts for the vast majority of the materials recovered, but some materials are associated with a component embedded in the paleosol that is not yet identified temporally or culturally. Key points regarding the distributions of the Toyah and earlier component assemblages within the site are described below. Much of this is based on observations made in the field and is not meant to be the final word on the subject. Subsequent analysis will undoubtedly clarify some matters and change our interpretation of others.

Toyah Phase. Seven of the nine features (all but the mussel shell scatter and cluster of knapping debris) were found on the paleosol surface and are assigned to the Toyah component. Radiocarbon ages are not yet available for these features, and only one is associated with a Perdiz point, but their shared general provenience (i.e., the paleosol surface) with other Perdiz points, beveled knives, bison elements, and ceramics suggests they are the product of Toyah folk activities. These seven, combined with the five features assigned to the Toyah component from testing, represent 12 features recorded as the Toyah component at site 41HM51. These features cluster in two areas, the northeastern and east-central part of the block and adjacent test units, and the southwestern portion of the block and adjacent test units (Figure 3).

The southwestern cluster consists of five features: three basin-shaped hearths of similar size and content (Features 1 and 7, and F-6 from testing); an ash pit (F-4 from testing); and a discard pile (F-5 from testing) associated with Feature 6. Relatively higher frequencies of bones and debitage were associated with this cluster. The northeastern and east-central cluster consists of seven features: a basin-shaped hearth (F-8 from testing); an ash and charcoal-filled basin (F-9 from testing); clusters of bison (F-2) and deer bones (F-6); a discard pile of hearth or boiling stones (F-8); a discard pile of tool fragments and burned rocks, flakes, and bones (F-4); and an ash and oxidized sediment lens (F-5). This area also yielded high densities of bones and debitage. Projectile points and other chipped stone tools were infrequent in this area, however.

Unknown Component. Materials associated with the temporally and culturally unknown component were found 10 and 25 cm below the paleosol surface. It is unclear if all the materials are part of a single, discrete component, or if some are intrusive from the overlying Toyah component. In any case, the cultural materials are sparse and occur sporadically across the site and consist primarily of a few bison bones, pieces of burned clay, and mussel shells. Lithics of any type are largely absent from this component. The cluster of knapping debris and the mussel shell scatter are assigned to this component even though a Perdiz point (believed to be intrusive) is associated with the latter. It should be noted that a Perdiz point was found during test excavations at 60 to 70 cm below the paleosol surface, illustrating that some vertical movement of artifacts has occurred. The features and component may represent an earlier Toyah occupation, although its presence within the paleosol tends to contradict the notion that this soil predates the Toyah archeological record (see Mehalchick et al. 1999). Stratigraphically, the materials assigned to this component appear to be too high above the Late Archaic component identified in testing to be associated with it. Multiple charcoal samples collected for radiocarbon dating from the mussel shell scatter may clarify its temporal affiliation.

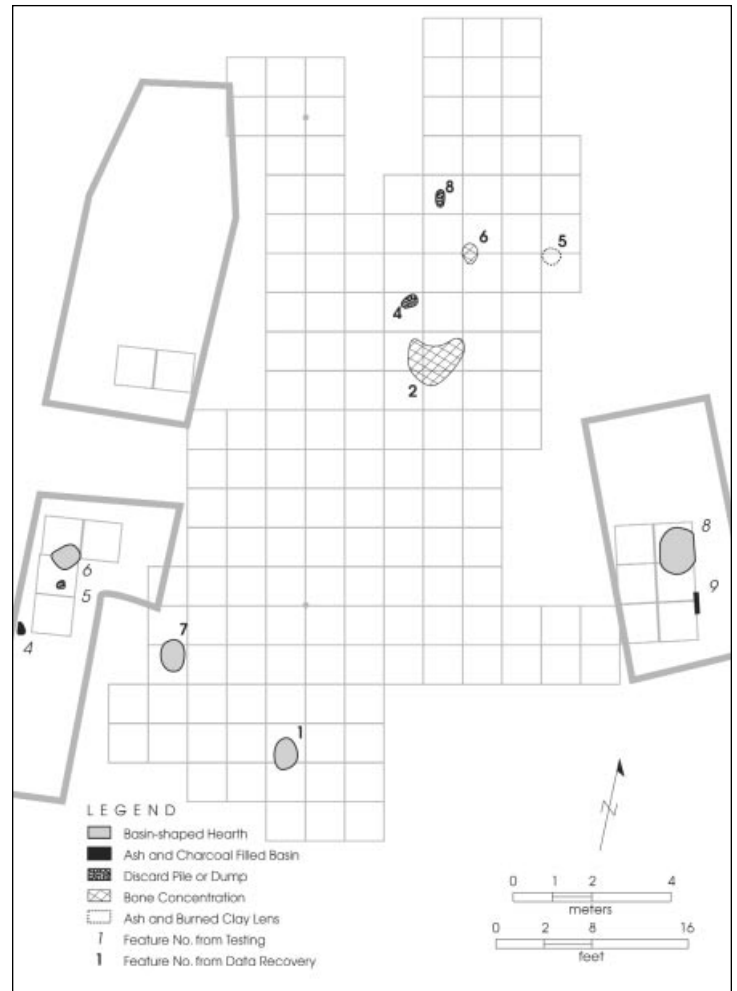


Figure 3. Plan of data-recovery excavation block and test units at site 41HM51, showing distribution of Toyah-age features.

Relevant Research Issues

A preliminary assessment of these investigations suggests that the data sets recovered from site 41HM51 are well suited to address four broad topics of inquiry: (1) the local environment at the time of the Toyah occupation; (2) intrasite patterning and the delineation of activity areas in Toyah camps; (3) Toyah subsistence and economic activities; and (4) mobility, interregional contact, and exchange among Toyah folk at site 41HM51, other Toyah groups, and non-Toyah groups.

Environmental Reconstruction. Environmental reconstruction at site 41HM51 will involve the resolution of two broad, interconnected issues: the reconstruction of climate and of the local flora and fauna. Relevant materials recovered are gastropods and macrobotanical remains from feature flotation samples and vertebrate and invertebrate remains recovered from dry screening and feature flotation samples. Soil and sediment samples were also collected for the purpose of diatom, phytolith, and pollen recovery, as well as to measure stable carbon isotope ratios of the organic matter. Soil/sediment samples were collected from the top levels of the

paleosol and the overlying dark muds and clays at the base of the recent alluvial drape.

Such analyses can provide a sense of the local flora and environmental parameters at the site at the time of the Toyah occupation and shortly thereafter. The alluvial stratigraphy and pedogenic history of the locale indicate a change in landscape morphology and hydrologic conditions during and certainly after the Toyah occupation. Local floral patterns and other environmental elements should have changed accordingly. Gastropods and certain small mammals inhabit a narrow environmental (temperature and moisture) range, and their presence may be an indicator of these variables. Other mammals may inhabit and utilize a broader habitat, but their presence will give some insight into the presence of these habitats and their climatic correlates. Identification of mussel shell species present may indicate some of the hydrologic conditions of their source, presumably the Leon River.

Macrobotanical recovery from flotation samples from many of the features recorded during testing was often excellent, albeit seemingly weighted in favor of wood charcoal rather than seeds or nuts. Flotation samples from data recovery hold similar promise. The floral regime, and some indication of general climate, can be directly inferred from macrobotanical remains recovered from flotation. Faunal preservation was excellent; the identification of faunal remains will not only provide an indication of what animals were locally available, but also will serve as a proxy for climatic conditions.

Intrasite Patterning and Delineation of Activity Areas. An understanding of the intrasite patterning of Toyah campsites is incomplete due to the small number of extensively excavated sites. In addition to the basic issues of site function and delineation of activity areas, questions such as the identification of communal areas, estimation of group size, and length of occupation may be addressed at site 41HM51 simply based on the size of the excavated block and the types and quantities of materials recovered. The overall artifact assemblage is robust, both quantitatively and qualitatively, and preliminary assessment suggests horizontal patterning. This is particularly true for vertebrate faunal remains. Clusters of features are evident and can indicate the types of activities occurring at the site and how those activities were organized. The small number of features may actually suggest a shorter, perhaps single-episode, occupation with less overprinting of activities that one would expect with longer or multiple occupations. Likewise, feature distribution may also be useful in answering questions about group size and communal areas, although, unfortunately, no evidence of structures was found. At the Rush site, Quigg and Peck (1995) also estimated group size on the basis of the number of bison represented at the site. The vertebrate faunal assemblage at site 41HM51 is certainly robust enough to estimate perhaps a minimum group size.

Subsistence and Economic Activities. Indeed, the recovered artifacts and recorded features bear most directly on subsistence, and subsistence and group organization are intimately intertwined. While it is generally clear *what* was being exploited at a site, it takes considerable more analysis to support any ideas about the wider subsistence process, from the selection of resources (which may be constrained by availability, seasonality, and culture), to their procurement, processing, consumption, discard, and eventual entry into the archeological record. Additional questions about group organization, group size, and division of labor during these activities require the construction of a more delicate framework for conclusion. The basic questions to be addressed at site 41HM51 are: (1) what kinds of resources were being exploited in the local environment (as a function of total resources in the area); (2) how were these resources acquired and processed; and (3) during which season did resource procurement take place.

Emphasis will be placed on analysis of vertebrate, invertebrate, and macrobotanical remains. In these areas, site 41HM51 is well suited to answer basic questions about subsistence of Toyah peoples. Faunal remains were abundant and well preserved and should provide ample species identifications. In particular, large numbers of bison bones were recovered, and the elements represented seem to reflect a selection bias and differential preservation. This is most likely due to varying levels of processing occurring both on and off the site. Freshwater mussel shells were not particularly well preserved, but their relative abundance may give some indication of their relative importance in the diet. Recovery of macrobotanical remains by flotation of feature fill promises to be good. This may provide insight into which plants were consumed and used for fuel, and the extent of use. Both vertebrate and macrobotanical remains may also give some insight into the season of occupation. Bone preservation is likely good enough to infer age structure. The types of seeds/nuts present in the flotation may give some indication of the season of procurement. The overall balance of vertebrate and invertebrate remains and macrobotanical remains may also clarify the function of the site (i.e., a special site for bison processing or a more general campsite).

The overall lithic assemblage recovered from site 41HM51 is "classic" Toyah as defined by Johnson (1994). What part this tool kit played in subsistence, particularly in terms of procurement and processing of resources, will be a focus of analysis. To this end, a number of the formal tools (scrapers and bifaces) have been left unwashed for residue analysis.

Interregional Contact and Exchange. Site 41HM51 provides an excellent opportunity to address issues of interregional contact. Two types of artifacts (ceramic vessel sherds and obsidian) were recovered that appear to have originated some

distance from the site; furthermore, these two artifact types probably came from opposite directions.

The ceramic sherds recovered are a Late Caddoan ceramic type identified as Bullard Brushed. This ceramic type occurs mainly in the area of the Neches and Sabine rivers in northeast Texas ca. A.D. 1200–1500 and is known from Central Texas as a trade ware (Suhm and Jelks 1962:21). The presence of these ceramics at the site invites the question, as it has at other Toyah phase sites, of whether these vessels were made by local groups in imitation of Caddo vessels or whether they are genuine Caddo vessels. Petrographic and instrumental neutron activation analyses of Caddo ceramics recovered from several sites at Fort Hood and in surrounding counties of Central Texas indicated they had indeed originated in northeast Texas (Perttula et al. 2003). It is proposed that similar analyses be performed on selected sherds from site 41HM51 and the data compared with those obtained by Perttula et al. (2003).

The obsidian from site 41HM51 macroscopically appears to have originated from the Jemez Mountains of New Mexico, some 850 km to the northwest. While considerably more attention has been paid to the relationship between Toyah peoples and the Caddos through the study of pottery, the relationship between Toyah peoples and groups to their west has gone largely unexplored. Trace element analysis (e.g., x-ray fluorescence) performed on select pieces of obsidian from site 41HM51 to establish their origin may illuminate this issue and the mechanisms of exchange and group mobility.

Syntheses (e.g., Kelley 1986; Kenmotsu 2001; Wade 2003; Hickerson 1994) of primary ethnohistorical sources (mainly accounts of early Spanish exploration) that describe protohistoric groups occupying the classic Toyah area (and possibly responsible for the Toyah archeological record) can be used to provide an understanding of these trade and social relationships and their significance for the occupants of site 41HM51, as well as for other Toyah groups engaged in similar activities.

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Contracting Archeologists: Prewitt and Associates, Inc.

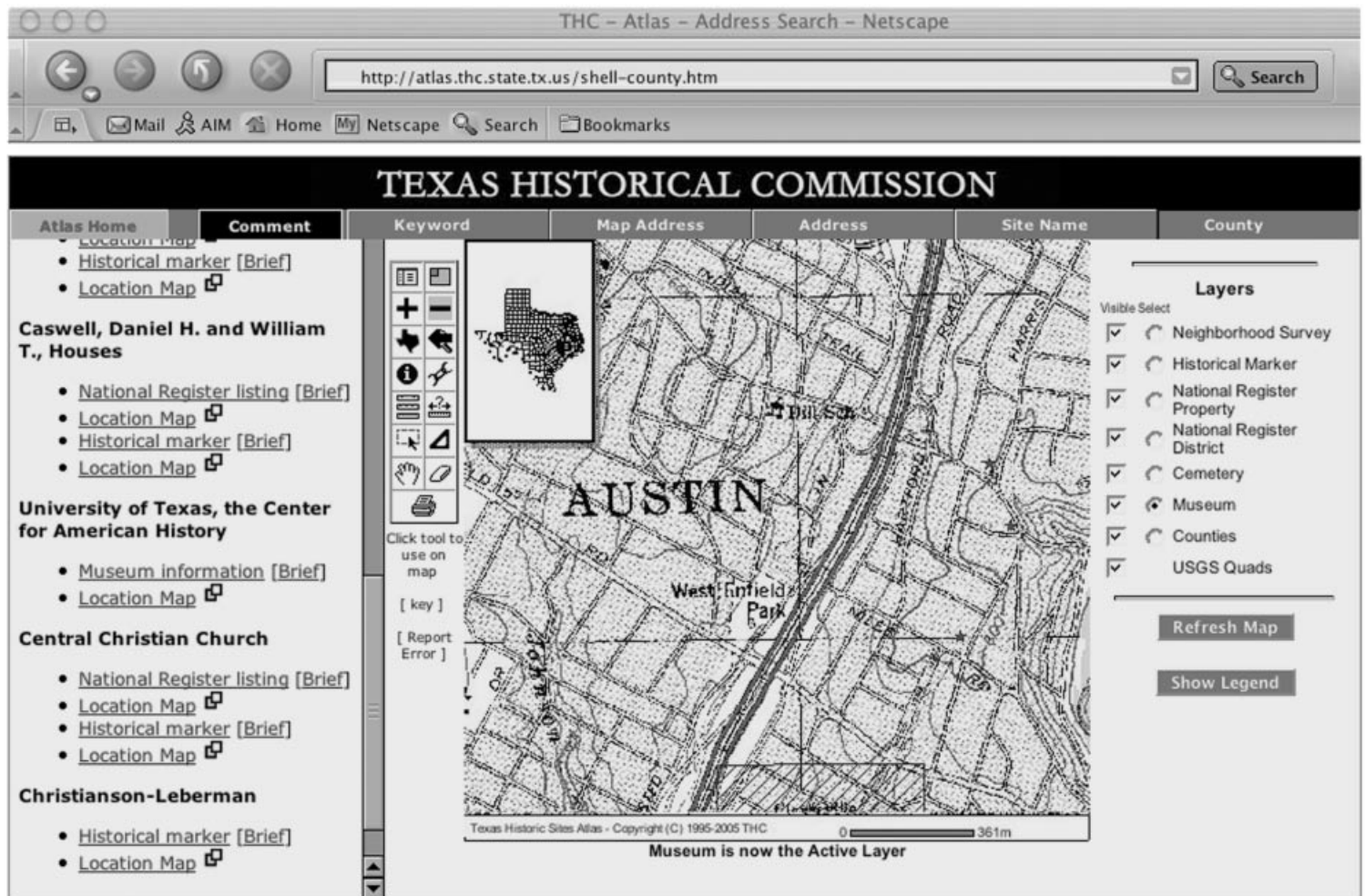
Principal Investigator: Karl Kibler

Project Archeologist: Cory Broehm

CURRENT NEWS AND EVENTS

THC Online Atlases Get Facelift

by David Hendler



The new look of the Texas Historic Sites Atlas, featuring expanded search capabilities and improved map functions.

The Texas Archeological and Historic Sites Atlases are online resources that contain much of the information previously available only by visiting the Texas Archeological Research Laboratory (TARL) at the University of Texas or the Texas Historical Commission offices, both in Austin. The two atlases, products of a three-year project begun in 1995, were redesigned for the first time in March 2005. We hope users will find information faster in the redesigned Atlases and have a more enjoyable experience doing it.

Since their debut in 1996, the Archeological and Historic Sites Atlases have grown to comprise more than:

- 115,000 potentially historic buildings
- 64,000 archeological site locations

- 60,000 archeological site forms
- 12,000 historical markers
- 9,000 cemeteries
- 4,000 historic and present-day sawmills
- 2,800 National Register sites
- 800 historic county courthouses
- 500 museums
- 231 military sites

Version 2 puts all this information within easy reach. We incorporated many of the elements users requested in a 2004 survey. One common suggestion was to configure the database so users could search for a specific address — that is now possible in the new version. We also expanded the

keyword search on the Historic Sites Atlas (and added it to the Archeological Atlas) to allow the location of information within user-defined sets of data. The Atlas homepage now has a Quick Search box that works like a common search engine. All the pages containing forms now have a Print button to make printing easier.

Another new feature is the Report Error button on all forms, which can be used to log data discrepancies. And on the Archeological Atlas, we integrated the Trinomial Search with the Abstracts: users can click any trinomial in an Abstract to bring up information about the site.

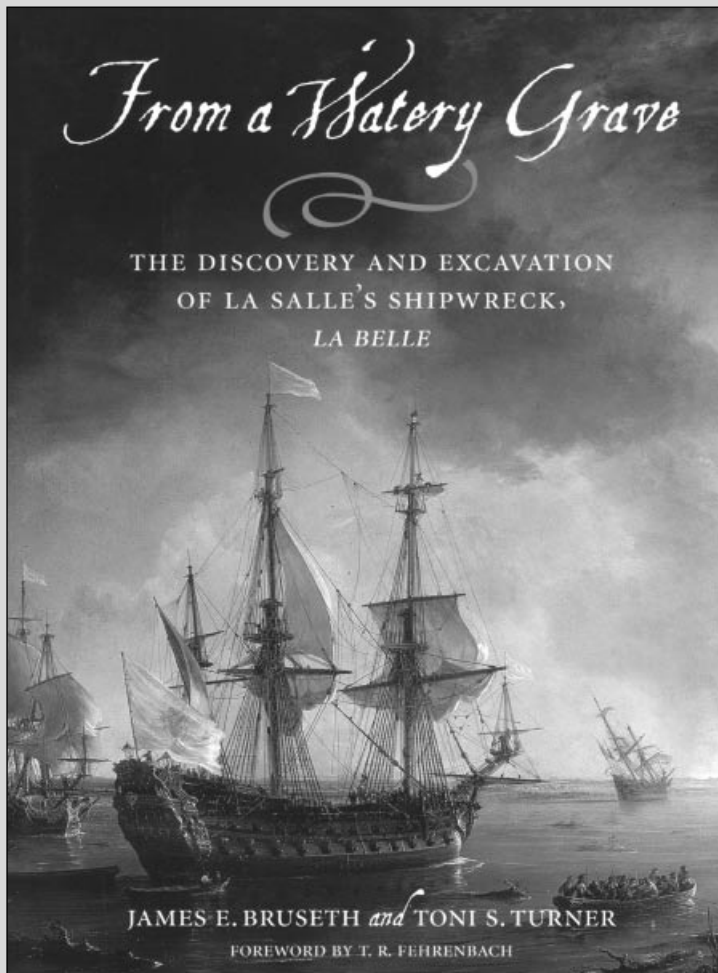
The most obvious changes, however, were made to the mapping application. With our new maps, all users will get the same, high-grade functionality with no special plug-in required. Maps are much larger now and contain more information. Version 1 Atlases kept maps at a 400 x 400 pixel size; Version 2 maps can be any size the user chooses — small enough to stay within the Atlas window, or, when opened in

a separate window, as large as the monitor allows. Users can also determine which types of objects appear on maps by selecting from a simple menu.

Scrolling and moving around in the maps is easier in Version 2. In Version 1, users had to click arrows and wait for the entire map to reload. In the new version, a pan tool moves the map in any direction, and new parts of the map seamlessly appear while old areas scroll off-screen. Zooming is also easier in Version 2: with the Zoom In/Out tools, users select the focus area. They can also draw shapes on maps and measure distances between objects of interest, as well as set the units of measurement. Plus, the new map-printing function allows users to print maps containing the shapes they drew.

Visit the redesigned Texas Historic Sites Atlas at <http://atlas.thc.state.tx.us>.

David Hendler is a web developer and technical writer for the Texas Archeological and Historic Sites Atlases.



***La Belle* Book Published by Texas A&M Press**

The new book by James E. Bruseth and Toni S. Turner, *From a Watery Grave: The Discovery and Excavation of La Salle's Shipwreck La Belle*, is now available from Texas A&M University Press. Written with both the general public and professional archeologists in mind, the volume is lavishly illustrated with more than 140 photos, drawings, and maps, most in color. Noted historian T.R. Fehrenbach contributed the Foreword.

The authors recount the story of how the *Belle* ended up at the bottom of Matagorda Bay — tracing French explorer La Salle's history and that of the two imperial powers competing for land in the New World — and describe the Texas Historical Commission's discovery and excavation of the shipwreck 300 years later. Senior author Bruseth directed the remarkable project. Archeologists will be especially interested in the detailed descriptions and photographs of some of the one million artifacts recovered from the wreck and conserved at the Conservation Research Laboratory at Texas A&M University.

MARINE ARCHEOLOGY



John Luce



Doug Nowell



Andy Hall

Steward Profile

Have Wetsuit, Will Travel

Marine Stewards John Luce, Doug Nowell, and Andy Hall

Most archeological stewards concentrate on the region of Texas in which they live. Not so the marine stewards. Their domain encompasses the Gulf of Mexico to more than 10 miles offshore, and all the bays, rivers, and bayous in the state.

A historic wreck can lie hidden in virtually any natural body of water in Texas, said State Marine Archeologist Steve Hoyt, because ferries once transported travelers across even small streams. So whether marine stewards live on the coast or deep in the interior of Texas, they often drive great distances to assist Hoyt in archeological investigations.

Two of the seven marine stewards, **John Luce** and **Doug Nowell**, live in the West Texas city of San Angelo, but they have participated in Texas Historical Commission (THC) projects in Galveston, on the Rio Grande, and in far North-east Texas, among other locations. “Both have many years of experience as divers in vastly more beautiful seas than are found in Texas,” Hoyt said of Luce and Nowell, “but they are still eager to get into our murky waters when the opportunity to investigate a shipwreck presents itself.”

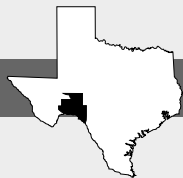
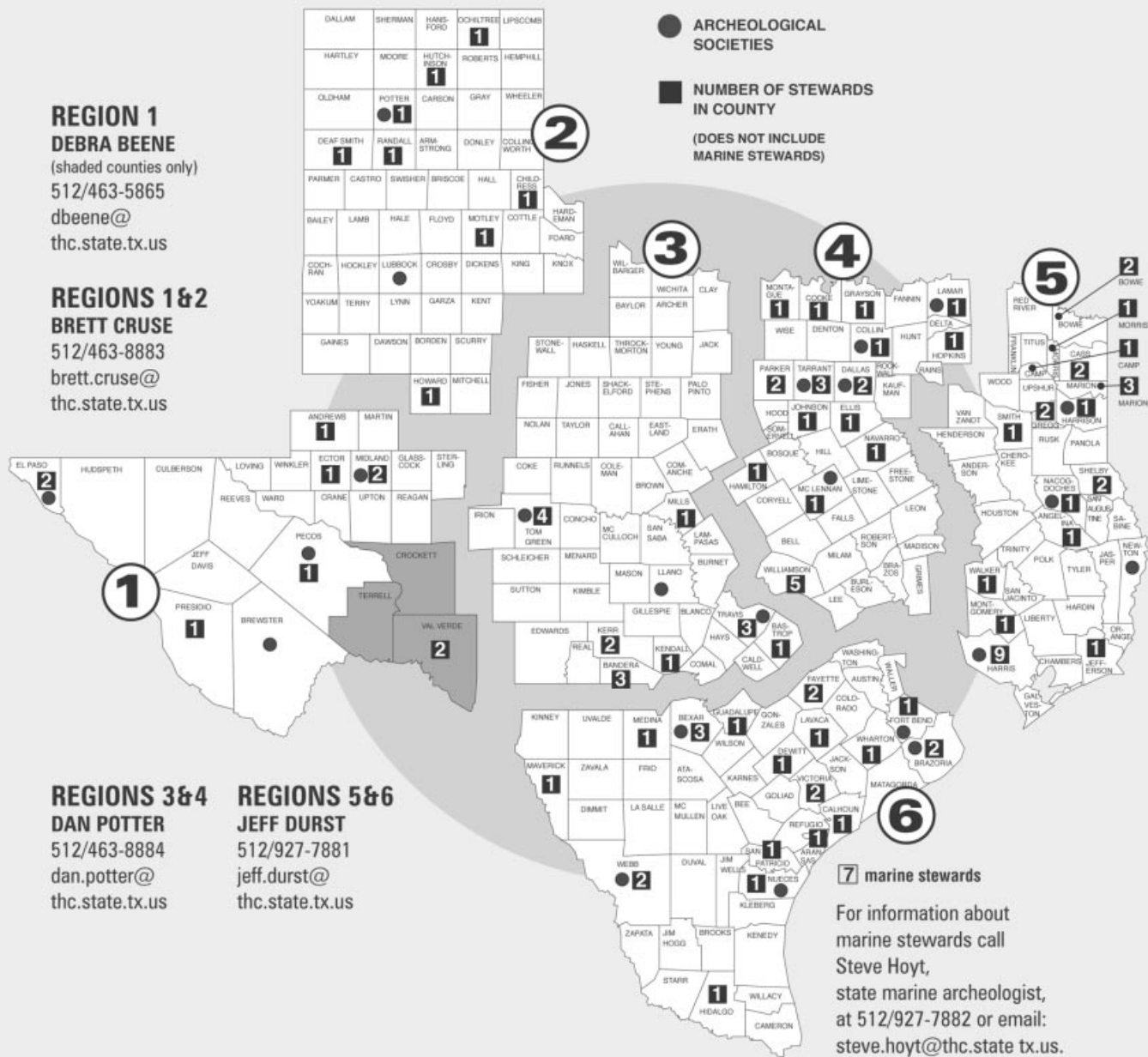
Andy Hall, a resident of Galveston, is generally nearer the action, but he also travels to help out on inland projects. Although Hall became a diver more recently than Luce and Nowell, he is always ready to gear up, even in the

worst conditions. On land, he is an experienced researcher and writer who has presented numerous scholarly papers at archeological conferences. “Being a marine steward gives me the opportunity to deal with Texas history in a real, hands-on way,” Hall said. “It allows me to do research and fieldwork in an area — Texas maritime history — that is not widely known or appreciated by the general public.”

An avid interest in Texas history also motivates Luce and Nowell, partly because of their deep roots in the Lone Star State. “My family on both sides came to Texas in the early 1840s,” Luce said. “They were very active in Central and North Texas before moving to West Texas in the 1890s and 1900s.” Nowell’s ancestors settled in the state after the Civil War.

But it was an event that took place long before the 1800s that originally brought Luce, Nowell, and Hall to the THC. All three helped THC archeologists recover French explorer La Salle’s ship the *Belle* from Matagorda Bay, where it sank in 1686. The THC, with the help of the capable marine stewards, is now searching for other historic wrecks in Texas waters. According to Hall, “We have a tremendous marine heritage that’s still out there, waiting to be found and recorded.”

REGIONAL AND STEWARD NEWS



TRANS-PECOS • DEBRA BEENE

Trans-Pecos Region

Seminole Canyon Rock Art Project Completed

The Texas Preservation Trust Fund grant project, "Assessment and Management Plan for the Rock Imagery Sites of Seminole Canyon

State Park and Historic Site," is complete and reports have been submitted to the Texas Historical Commission (THC). This project is important to the preservation and protection of the irreplaceable rock art of the lower Pecos, which includes the oldest dated rock art in North America.

Steward Activities

Jack Skiles monitored eight sites, presented workshops attended by more than 57 participants, and consulted with two local landowners. He has also rebuilt his father's blacksmith shop, which contains an old forge and hand-cranked drill. Several groups — including an

anthropologist and her family from Matera, Italy, students attending Texas Tech University's spring break workshop headed up by Elton Prewitt, and local students — visited Skiles' museum to learn about lower Pecos history and prehistory. And as always, Skiles continues his active stewardship of the significant archeological sites on his property.

Speaking of Skiles' archeological sites — Southern Methodist University's Dr. Dave Meltzer will soon return to research Eagle Nest Canyon's topography at the time of the earliest bison drives approximately 11,700 years ago. Bonfire Shelter, in Eagle Nest Canyon, is the location of the earliest and southernmost known bison jump in North America.

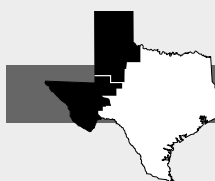
S. Evans Turpin worked on the Bill Bissell sites in Pecos and Crockett counties in conjunction with the staff of the Museum of the Southwest in Midland. They are now planning to present a paper about the sites at the meeting of the Southwest Federation of Archeological Societies in San Angelo this spring. He also attended the THC Mountain/Pecos Regional Workshop in September, where he participated in many discussions regarding ongoing regional research. Turpin later worked with the Iraan Archeological Society conducting metal-detector surveys in the Iraan area in an attempt to locate the Chihuahua Trail, Southern Military Road, and Old Stage Coach routes through northeast Pecos County. In addition, Turpin visited 10 rock art sites in western Arizona, southern Nevada, and southern California, as well as six mound sites in the Upper Mississippi River drainage area of Wisconsin and Minnesota.

Claude Hudspeth joined State Representative Scott Campbell at a B-36 crash site in Glasscock County. *Ranch Magazine*, which Representative Campbell owns and publishes, ran an article about the trip and 1955 crash on the cover of a recent issue. Although this event so long ago may not seem big news in 2005, the B-36 — once known as President Harry Truman's "Big Stick" — was the largest aircraft flying at the time. All 15 people on board were killed in the crash. Hudspeth will return to officially record the archeological site, and interest has been expressed in erecting a historical marker there.

Hudspeth worked at numerous sites during the past few months, including a bedrock mortar site on the Concho River, where he collected the information necessary to record it; he is awaiting the owner's permission to do so. In October, he worked at Paint Rock at the request of landowner Fred Campbell. Hudspeth located the site where the old Military Road crossed the Concho River and used a metal detector to search for two other "dugout" locations, but recovered only scrap metal. He joined Dan Potter, THC North and Central Texas regional archeologist, in a magnetometer survey at Camp Wood. They searched for graves associated with a cemetery predating the town site; due to negative results they now plan to perform a radar search. In November, Hudspeth accompanied the Concho Valley Archeological Society (CVAS) on a field trip to the Guadalupe Mountains National Park. They spent a couple of days locating the old Butterfield Trail, which passed through the park.

Hudspeth attended several archeological events in the region, including the Center for Big Bend Studies Conference in Alpine and the CVAS's annual archeology fair, this year held in

conjunction with Sheep Heritage Day. More than 4,000 people participated in that event. Finally, Hudspeth helped archeological steward **Reeda Peel** record a petroglyph site near Balmorhea.



REGIONS 1 & 2 • BRETT CRUSE

Mountain / Pecos & Plains Regions

Steward Activities

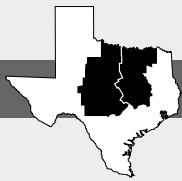
During this reporting period stewards in the Plains and Mountain/Pecos regions contributed approximately 950 hours toward steward activities. Stewards distributed more than 440 pieces of educational materials and gave presentations to more than 1,000 people. They also assisted 130 landowners, other individuals, and agencies. They recorded 13 new sites and monitored or investigated 38 other sites.

Several stewards have been involved in special or ongoing projects. **Alvin Lynn** continues to work on locating and mapping the historic trails in the Panhandle. Most recently he has been trying to identify the trail used by Kit Carson in 1864 when Carson led some 400 California and New Mexico volunteer troops into the Panhandle to attack the Kiowa and Comanche Indians at Adobe Walls on the Canadian River. Lynn has been successful in identifying several of Carson's camps as well as the Kiowa village that Carson attacked and burned as he was retreating from Adobe Walls.

Enrique Madrid has been busy assisting a Hollywood film crew to avert impacting several important archeological sites in Presidio County during filming. From September through November, Madrid assisted the crew with casting and casting locations and contacting landowners in the Polvo area. Also in November, Madrid traveled to Austin to participate in a cultural diversity meeting and workshop sponsored by the Texas Historical Commission (THC).

Despite a serious injury and subsequent surgery on his left shoulder, **Rolla Shaller** still managed to participate in several steward activities. In September, Shaller accompanied Scott Brosowske (a doctoral candidate at the University of Oklahoma) and fellow stewards **Joe Rogers** and **Alvin Lynn** on a field trip to inspect several sites along Tierra Blanca Creek and Garcia Lake in western Deaf Smith County. In October, Shaller assisted the Panhandle Archeological Society with activities at the Fannin Middle School History Fair in Amarillo. At the fair, Shaller demonstrated how corn was ground using a mano and metate. (Maybe that is how he injured his shoulder!)

Doug Wilkens worked with several volunteers under the direction of Doug Boyd at the M-Cross Ranch in Roberts County to conduct test excavations of a probable prehistoric house structure. The probable structure had been partially exposed by erosion and was found by Wilkens and landowner John Erickson. Wilkens also assisted Scott Brosowske with a survey along Northrup Creek in Ochiltree County.



REGIONS 3 & 4 • DAN POTTER

Forts/Hill Country & Lakes/Brazos Regions

Steward Activities

Del Barnett (Mills County) continues his involvement in planning for an archeological display to be associated with the Mills County Museum in Goldthwaite. Barnett recently met with the museum board and THC staffers Dan Potter and Peter Ketter in Goldthwaite.

Jay Blaine (Collin County), in his usual fashion, continues to examine muskets, nails, gunflints, and all things ancient and metallic. He recently participated in an exploratory examination of the Joe Benton Collection, a remarkable assemblage of Wichita and other materials from the Montague County area.

Dan Brown (Tom Green County) gave stewardship assistance in his area 13 times, and **David Calame** (Medina County) reports 10 new sites recorded during this period. Adrienne Mraz (TARL) notes that Calame's site record forms *are among the best she has seen (avocational or professional) over the past year*. Calame also had a chance to view four artifact collections, and he provided stewardship assistance 16 times. He noted that he would appreciate it if regional archeologists would let him know when anything comes up in his area.

Kay Clarke (Williamson County) provided several archeological programs to more than 120 folks in the Liberty Hill area, monitored three archeological sites, and provided TASN assistance 10 times. **José Contreras** (Kendall County) reports a new site recorded in his area and assistance to eight landowners and other individuals.

Bryan Jameson (Tarrant County) reports 150 hours of volunteer time and assistance to 13 landowners, citizens, or organizations. Jameson recently coauthored a paper with State Archeologist Patricia Mercado-Allinger on the stewardship network, which was presented at the annual meeting of the Society for American Archaeology in Salt Lake City.

Rick Jarnagin (Williamson County) has been documenting recent damage to a historic cemetery in Round Rock and passing on the information to local law enforcement officials and the THC's Gerron Hite.

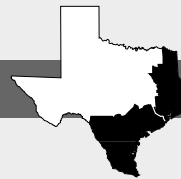
Paul and Jan Lorrain (Dallas County) have contributed about 100 hours to the TASN, including site monitoring and assistance to individuals, agencies, or organizations. **Nick Morgan** (Bastrop County) reports that he assisted a local landowner and attended the ceramics academy sponsored by the TAS. **Laurie Moseley** (Parker County) reports that he investigated 10 sites and presented five talks or workshops, and that he continues to write his weekly newspaper column on western history and archeology. **Glynn Osburn** (Tarrant County) was one of the stewards assisting THC and Texas Tech University staff in remote-sensing research at the old presidio near Menard. Osburn also gave three presentations to a combined audience of 200 students.

Ona B. Reed (Cooke County) reports a couple of archeological sites monitored in her area and stewardship assistance to five

individuals or groups. Reed assisted in rock art recording near Balmorhea and worked with the Tarrant County Archeological Society at the Sprague site. She recently inquired whether there was a good piece of THC literature about the TASN — and there is. One of the insert brochures in our literature packet is about the stewardship network and can be ordered from Archeology Division office manager Donna McCarver at 512-463-6090, or through your regional archeologist. **May and Jim Schmidt** (Travis County) have been volunteering substantial hours to TAS Red River Field School lab work, but also have had the time to respond to requests from landowners and other folks needing stewardship assistance.

Frank Sprague (Hamilton County) is in some demand as a local speaker on Hamilton County history and prehistory. With the Tarrant County Archeological Society, Sprague is continuing a testing program at an important site on his property adjoining the Leon River. **Alice Stultz** (Tom Green County) reports that she has assisted 10 landowners and others and has given a couple of public programs in the San Angelo area. Stultz also reports a newly recorded site. **Art Tawater** (Parker County) assisted John Arn at the Janee site, (41MN33) in Menard County, and spent a good deal of his spare time completing his faunal reports of materials recovered from the Techado Springs Pueblo.

Bill Young (Navarro County) monitored 27 sites in his area. He has been spending most of his available time documenting historic cemeteries in his county. **Kay and Woody Woodward** (Kerr County), the dynamic duo in the Texas Hill Country, report 10 newly recorded sites. Considering the rapid growth and development of the Hill Country, this is an excellent contribution. They also gave public presentations to more than 600 Hill Country residents and embarked on a salvage excavation at 41KR626, a looted site on private land. Woody noted that with climbing prices, gasoline purchases are becoming a substantial charitable gift from stewards to the TASN program.



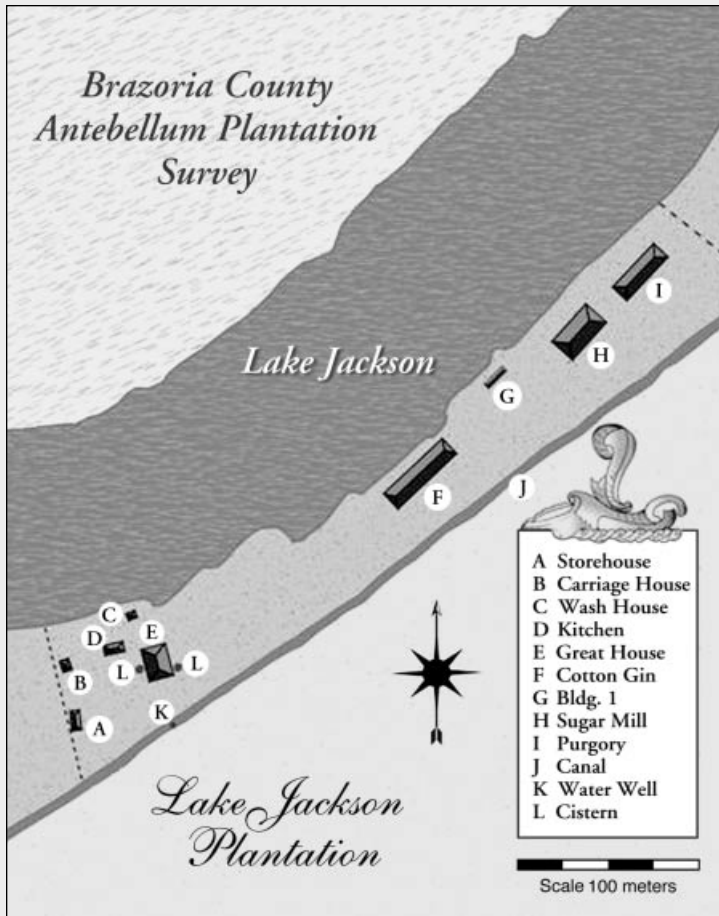
REGIONS 5 & 6 • JEFF DURST

Forest & Independence/ Tropical Regions

Plantation Survey Underway in Brazoria County

In an effort to record the structural remains of some 45 known antebellum plantation sites in Brazoria County before many are lost forever, the THC has teamed with the Brazosport Archeological Society, the Lake Jackson Historical Museum, and the Brazoria County Historical Museum to map and record visible architectural remains and to enhance this information with archival data pertaining to the plantations. Many of these sites are located on private property, and the success of the project will depend heavily upon the interest and cooperation of individual landowners in Brazoria County.

To date the project has mapped two of the known sites: the Lake Jackson Plantation owned by the Lake Jackson Historical Museum (see map on page 29), and the Bryan Home site owned by the



Map produced from recent work at the Lake Jackson Plantation.

Nature Conservancy. Both owners graciously allowed the project team access to the sites for mapping. The project is being conducted with the assistance of several THC stewards: **Johnney and Sandra Pollan, Dick Gregg, Beverly Mendenhall, and Sandy Rogers**, with additional assistance from members of the Brazosport Archaeological Society.

As the cool winter months give way to the steamy summer days when snakes become a problem in the area, the project will move indoors to conduct archival research at the Brazoria County Historical Museum. This museum, located in the old county courthouse in Angleton, houses many of the early county records pertaining to plantation life throughout most of the 19th and early-20th centuries.

At the culmination of the project we hope to have trained a large team of field surveyors and mappers as well as a team of archivists who can carry on this type of research in the surrounding counties.

Steward Activities

Pat and Beth Aucoin (Harris County) have been extremely busy during the past few months contributing many hours to the San Felipe de Austin Archeological Project directed by Marianne Marek. They have also logged many hours and miles assisting with the Piney Woods Archeology Fair and the San Jacinto Fall Festival.

Bill Birmingham (Victoria County) remains busy recording numerous archeological collections, including his own, for donation to the Museum of the Coastal Bend in Victoria. Birmingham has also

spent many hours over the past quarter working at the McNeill-Gonzales Ranch site (41VT141) a large habitation and cemetery site covering most of the time of human habitation in the Texas Gulf Coast Plain. Congratulations to Birmingham also for being elected to the Board of Directors of the Museum of the Coastal Bend.

Jimmy Bluhm (Victoria County) has been occupied with excavations at the McNeill-Gonzales Ranch site and continues to be the driving force behind the salvage effort at the site.

Pat Braun (Aransas County), assisted by several other stewards, conducted salvage excavations site 41AS96, where human remains were eroding out onto the beach and being washed into the bay. She also remains busy with the McNeill-Gonzales Ranch site and volunteering at the Museum of the Coastal Bend.

Julian Cranfill (Bowie County) is very active in the repair and reconstruction of pottery and also participated in the Texarkana Archeology Fair held in October.

Robert Crosser (Fort Bend County) is one of the new stewards instated in 2004. Crosser hit the ground running by assisting landowners in Fort Bend County in their search for the cabin of Thomas Barnett, which was burned by the advancing Mexican Army in 1836. Barnett and his wife Nancy Spencer Barnett were part of Stephen F. Austin's original 300 colonists. Crosser also participated in the excavations at San Felipe de Austin and helped with excavations at the purported site of Jean Lafitte's Maison Rouge on Galveston Island.

Bob Everett (Guadalupe County) promoted Texas Archeology Month by providing a special month-long archeological exhibit at the Heritage Museum in Seguin and at the Guadalupe County Public Library in Seguin.

Patsy Goebel (DeWitt County) has had her hands full lately serving as chair of the DeWitt County Historical Museum. She is currently working on a Civil War exhibit that will run from May through December of 2005.

Richard Gregg (Harris County) aided Marianne Marek with excavations at San Felipe de Austin and participated in numerous other projects in and around Harris County.

Patti Haskins (Gregg County) is always very active in northeast Texas. She visited with several landowners and monitored several sites in her region. Haskins was also very active in the preparations for the Texas Archeological Society's Archeology 101 Academy in Tyler.

Joe Hudgins (Wharton County) was another of the many stewards who assisted Marianne Marek with excavations at San Felipe de Austin. He also recorded a new site and examined a collection in Austin County.

Don Keyes, Jr. (Montgomery County) participated in the Sam Houston Archeology Fair and also helped out at one mock dig at San Felipe de Austin and another at the San Jacinto Battlefield.

Johnney Pollan (Brazoria County) has been very active with the plantation survey, which will find, map, and record some 45 or more antebellum plantations in Brazoria County.

Sandra Pollan (Brazoria County) has been actively indexing the Brazoria County District Court Records from the 19th century, which are housed at the Brazoria County Historical Museum. She also serves as secretary of the Brazoria County Historical Commission.

Richard Proctor (Lamar County) is another new steward who joined the TASN in 2004. He is currently serving as president

of the recently formed Valley of the Caddo Archeological Society and has been extremely busy making preparations for the upcoming TAS field school — he will be the camp boss. Additionally, the Valley of the Caddo Archeological Society hosted the 2005 East Texas Archeological Conference in Paris, Texas. Proctor is a highly energetic and enthusiastic individual and is obviously committed to making a significant contribution to Texas archeology.

Arnulfo (Fito) Santos, Jr. (Webb County) has been active lately south of the border recording rock art sites near the town of Bustamante, Nuevo León (see report by Santos at end of this section). A feature story in the *Laredo Morning Times*, also by Santos, details the incredible rock art found in the Chihuahuan Desert south of Laredo.

Tom Speir (Harrison County) is working on a report of his recent investigations at the old town site of Elysian Fields in north-east Texas.

Mark Walters (Smith County) helped conduct a field school recently in Texarkana. Known as the Gateway Project, the field school aims to record the archeological remains of an early hotel that once graced the streets of downtown Texarkana. Walters also recently published an article in an archeology journal about the Browning site (41SM195) and has submitted an article for publication in the *Caddoan Archeology Journal*. Additionally, Walters recorded an amazing 30 sites in Smith County.

I must say that the stewards in Regions 5 and 6 have been incredibly busy the past quarter. It is difficult to list all stewards and their marvelous accomplishments, but the staff at the THC, especially me, salute each and every one of you and implore you to keep up the great work.



Arnulfo (Fito) Santos, Jr.

A Mystery of the Chihuahuan Desert

A Report by TASN Member Arnulfo Santos, Jr.

Were it not for the abundance of prehistoric petroglyphs and pictographs on its rocky surfaces, Cerro de Chiquihuitillos would likely go unnoticed. Ancient artisans used the upper vertical area of the mesa, which locals call the *relize*, as a canvas for their native pigments, and chiseled petroglyphs into the boulders below.

About 10 miles southwest of Bustamante, in Nuevo León, Mexico, Cerro de Chiquihuitillos is a small mesa of 10–15 acres that rises about 200 feet above the desert floor. A nearby meandering dry creek stands ready to route the infrequent rainwater around the mesa. This mesa, like the flat, parched country surrounding it, bristles with spiny desert plants that have an affinity for hikers' unprotected ankles, hands, and arms. But the panoramic view of North America's largest desert and the intriguing pictographs at the top more than compensate for any discomfort.

A Startling Suggestion

For years my trusted colleague Roberto Cavasos had insisted that I make the two-and-a-half-hour car trip from Laredo to Cerro de Chiquihuitillos to see the rock art. Cavasos said his friend Alejandro (Alex) Figueroa had an unusual interpretation of specific rock art symbols found in the area.

The defining characteristic of the Chiquihuitillos style, according to *Rock Art of the Chihuahuan Desert Borderland* (1998) is the boxing of often fine-line geometrics in rectangular, sub-rectangular, oval, trapezoidal, and hexagonal outlines. The mesa's pictographs include a great variety of shapes, patterns and motifs, but most are connected red geometrical shapes.

Dr. Carolyn E. Boyd, Dr. Solveig Turpin, and other respected researchers interpret rock art paintings as being mostly ritualistic in nature. In her recent book, *Rock Art of the Lower Pecos* (2003), Boyd suggests that by chanting, dancing, drumming, and possibly ingesting certain native plants — especially peyote, a hallucinogenic cactus common to the area — the artists achieved altered states of consciousness. She cites modern medical experiments in which subjects saw certain abstract figures and animal forms after the administration of hallucinogenic drugs. With increased dosages, subjects often felt they had actually *become* animals. Nevertheless, the precise meaning of the rock art continues to elude even the most serious efforts at interpretation.

Alex Figueroa, however, who would accompany us on the journey to the mesa, has an explanation of the rock art that is miles — no, light years — apart from any to be found in the archeological literature. He believes that the Chiquihuitillos pictographs record early UFO sightings.

I decided to make the trip.

South into Mexico

My companions were Figueroa, who is an accountant when not pursuing his UFO interests; Cavasos, a slim, 30-something computer engineer with slicked-black hair; loan underwriter Christie Underhill; Greg Ebe, financial officer for a land developer; Seth Avant, a redheaded high-school teacher and former bike racer; and news photographer Cuate Santos. The seven of us split unto two groups and headed south into Mexico.

Just past the charming town of Bustamante, we picked up our guide Antonio, who would direct us to the mesa. We made several stops along the way to photograph the vivid desert scenery and adobe ruins. Cuate took every opportunity to capture the rugged landscape, adorned with the spiny, robust plants that made it perfectly clear we were in the Chihuahuan desert. The flora was comparable to, yet different from, its Texas counterparts. The jumping cactus, or *tasajillo*, looked even more muscular and menacing than the Texas variety.

After about an hour of traveling west on a dirt road, we came to a halt next to a *campo* (ranch camp), and out of the dust cloud my truck stirred up appeared a tall, slender figure with creased, sunburned skin and white beard stubble, resembling nothing so much as an extra in a Western movie, complete with weathered, sweat-stained palm hat and dirty red bandana — Juan Villarreal, the ranch owner. We paid the fee of 20 pesos per person, and he pointed a crooked finger toward the mesa a hundred yards in the distance.



Ranch owner Juan Villarreal at Mesa de Chiquihuitillos, near Bustamante in Nuevo León, Mexico.

The Trek up Chiquihuitillos

The loose dirt surface made the ascent quite challenging. It seemed that for every two steps upward, I slid one downward. Furthermore, people higher up the mesa would inadvertently loosen rocks, sending them careening to those below. The many varieties of cacti didn't help either. Pained exclamations of "Ouch!" and "Ay!" rang out from the team.



The group climbs 200 feet to the top of Mesa de Chiquihuitillos.

As we walked, I remembered when I led a group to Mesa de Catujanos, which is located about 30 miles north of Chiquihuitillos Mesa. The *relize* of Mesa de Catujanos was also decorated with rock

art. It occurred to me that ancient artisans might have been attracted to mesas, and I wondered if these unique landforms held special significance for them.

A geology professor at Southern Methodist University explained to me that mesas form differently from mountains: a mesa does not heave from the ground as does a mountain. Rather, it is what remains after the surrounding earth erodes away. A mesa's sides were once underground, and the upper portion was a floor elevation. This wasting away of land is an incredibly slow process, taking tens of thousands of years.

Fiery Rings, *Luces*, and Otherworldly Sightings

After an hour of doing the "two steps forward, one step back" dance, the group finally reached the *relize*.

The rock art was plentiful and in good condition. I noticed fist-sized clusters of what looked like fiery rings. These rings seem to be exclusive to this mesa. Figueroa suggested that the concentric circles alluded to communication between indigenous people and extraterrestrials. Mysterious lights, or *luc*es, are common sightings in and around Bustamante, seeming to occur at or near Bustamante Canyon. I myself have seen *luc*es at nearby Mesa de Catujanos that looked as if someone were playfully moving a flashlight against a wall.



Red rings painted on the *relize* of the mesa.

After about an hour on the mesa we headed down. Back in Bustamante, we stopped at one of the many *panaderías* for sweet bread. I asked Dolores, who runs the bakery, if she had ever seen an OVNI (UFO), to which she replied, "Sure, they come here to reenergize." Her teenage son added eagerly that just two weeks ago he had seen a craft in the canyon area. In Laredo later that day I discovered that more than a few people claim to have seen UFOs near the canyon.

I'm not prepared to claim that the rock art at Cerro de Chiquihuitillos (or anywhere else) is the result of extraterrestrial influence — but I can say it is fascinating.

References

- Boyd, Carolyn E.
2003 *Rock Art of the Lower Pecos*. Texas A&M University Anthropology Series no. 8, College Station, Texas.
- Smith-Savage, Sheron, and Robert J. Mallouf (editors)
1998 *Rock Art of the Chihuahuan Desert Borderlands*. Occasional Paper no. 3, Center for Big Bend Studies, Sul Ross State University, Alpine, Texas.

The Original Lockhart Bar-B-Q Place

by Gary McKee

THC Archeological Steward

Lockhart has long been famous for its Bar-B-Q establishments. There is one nearby, however, that luckily has been overlooked by the public.

Lockhart lies between the Post Oak Belt of Central Texas and the Balcones Fault Zone. These natural barriers funneled bison during their seasonal migrations through the Lockhart prairie, where multiple water, lithic, and cultural-material resources are in close proximity. In the middle of the Lockhart prairie is a privately owned parcel of land littered with choppers, "Butted Knife" bifaces, fire-cracked rocks, and other artifacts — evidence of a cookout of great proportion.

The following is an example of how the Texas Historical Commission's Texas Archeological Stewardship Network (TASN) works with landowners to protect and investigate archeological sites. Dan Potter, regional archeologist for North and Central Texas, received a phone call from a citizen who was concerned about protecting her property from developers. The land had been in the family for generations, and she remembers her grandfather plowing up arrowheads in a small corn patch by a creek with a perennial spring. Potter contacted me, and I got in touch with the landowner, Fredrika Kinnard, and arranged a site visit.

Research showed that a site and a collection of corner-tang knives, incised bones, and many varieties of lithics had been recorded on the adjoining property. A notation on the form stated that "the best undisturbed area was on the other side of the fence." The Kinnard property was on the other side of that fence.

The landowner and I performed a preliminary surface inspection, which revealed plentiful choppers, possible scrapers, and probable butchering tools. A later pedestrian survey yielded two metates, manos, and hammerstones.

The first shovel test recovered a disc-shaped bead (material not yet determined), large amounts of *Rabdotus*, fire-cracked rock, and chert flakes. A second shovel test also produced large amounts of *Rabdotus*, fire-cracked rock, and chert flakes — but nothing diagnostic. The third shovel test started yielding chert flakes and heavily burned rocks, so the test was expanded to a 1 x 1 unit. Frio and Yarbrough dart points were recovered, and small "pebbles" of ochre, both red and yellow, appeared in the screen. The cultural debris disappeared after 50 cm. We continued the shovel test down to 100 cm below the surface, where we recovered several large concreted pieces of chert. At this writing, another test pit next to the spring had begun yielding temporal diagnostics, including an Ensor dart point.

The Kinnard property has a rich cultural heritage. In addition to the prehistoric component, it contains the remains of a log cabin that possibly dates to the 1860s. The landowner is compiling oral histories of the people who lived in the cabin through the many decades. We decided to put in a test pit beside the cabin

remains, and it immediately began yielding *both* prehistoric and historic artifacts. The base of another log cabin, which probably housed the plantation overseer, is also present, including hand-hewn timbers and wooden pegs. Requests for trinomials have been filed for these three sites, and research on the log cabins continues.

The landowner is very cooperative and eager to protect the property, even as subdivisions spring up around it. When eminent domain procedures allowed a sewage transport line to cut through her land, she physically blocked the backhoes headed straight toward the 1860s cabin and managed to convince the contractor to reroute the line by several yards.

The TASN, Texas Archeological Society (TAS), and Caldwell County Historical Commission are conducting the archeological work on this site, with assistance from University of Texas at Austin students in the Texas Historical Commission Archeology Intern Program.

During the university's spring break, three student interns — Alison Lawrence, Heather Smith, and Erin Powell — along with TAS member Carolyn Skopik and archeological stewards **Jim and May Schmidt**, met on a cool, rainy morning to help Dan Potter map the site using a Total Data Station. The students were able to use what they had been learning in class, and utilized some of the principles of excavation by laying out a 1 x 1 unit.



Dan Potter guides, left to right, TAS member Carolyn Skopik and student interns Erin Powell, Heather Smith, and Alison Lawrence in the use of a Total Data Station.



Alison Lawrence, Heather Smith, Erin Powell, and Carolyn Skopik begin to excavate a unit at the Lockhart site.

LOOKING AHEAD

MAY 25 - 30, 2005

Annual Conference of the American Rock Art Research Association. Reno/Sparks, Nevada. For more information, call 888/668-0052 or visit www.arara.org.

JUNE 2 - 5, 2005

34th Annual Conference of the Society for Industrial Archeology. This conference is held in cities that have a significant legacy of industrial activity. Central to these gatherings are special tours of contemporary and historic industrial sites and processes. Milwaukee, Wisconsin. www.siahq.org

JUNE 11 - 18, 2005

Texas Archeological Society Field School. To be held at the Gene Stallings Ranch in Lamar County. Field-school participants may choose to excavate, survey, or perform archeological lab work. Excavation will concentrate on a Fourche Maline site, where archeologists expect to find evidence of houses. The Fourche Maline culture is thought to have existed between 1000 B.C. and A.D. 800. www.txarch.org

AUGUST 31, 2005

Texas Historical Commission Regional Preservation Conference, Forts/Hill Country Region. Kerrville. Call 512/463-6100 or visit www.thc.state.tx.us.

SEPTEMBER 14 - 15, 2005

Texas Historical Commission Regional Preservation Conference, Mountain/Pecos Region. Odessa. Call 512/463-6100 or visit www.thc.state.tx.us.

SEPTEMBER 22, 2005

Texas Historical Commission Regional Preservation Conference, Forest Region. Beaumont. Call 512/463-6100 or visit www.thc.state.tx.us.

OCTOBER 2005

Texas Archeology Month. Month-long celebration of Texas archeology with numerous events and activities across the state. Co-sponsored by the Texas Historical Commission, the Texas Archeological Society, and the Council of Texas Archeologists. For more information, call 512/463-6096, email molly.gardner@thc.state.tx.us, or visit www.thc.state.tx.us.

OCTOBER 14, 2005

Texas Historical Commission Regional Preservation Conference, Lakes/Brazos Region. Waxahachie. Call 512/463-6100 or visit www.thc.state.tx.us.

OCTOBER 28 - 30, 2005

76th Annual Texas Archeological Society Meeting. This year's meeting will take place in Austin at the Airport Hilton. www.txarch.org

NOVEMBER 9 - 10, 2005

Texas Historical Commission Regional Preservation Conference, Plains Region. Plainview. Call 512/463-6100 or visit www.thc.state.tx.us.

NOVEMBER 9 - 11, 2005

American Cultural Resources Association 10th Anniversary Conference. To be held at the historic Hotel Monaco, Washington D.C. www.acra-crm.org

NOVEMBER 17, 2005

Texas Historical Commission Regional Preservation Conference, Independence/Tropical Region. Laredo. Call 512/463-6100 or visit www.thc.state.tx.us.

Coming soon from the Texas Historical Commission:



Investigations at the Salt Well Slough Site, 41RR204, a Salt-Making Site in Red River County, Texas

by Nancy Adele Kenmotsu, with contributions by Timothy K. Perttula

Archeological investigations conducted along the middle Red River during the 1991 Texas Archeological Society annual field school included excavation of a suspected salt-making locale near Caddo village sites. The evidence, especially characteristics of the ceramics collection and the presence of ephemeral hearths, suggests that

prehistoric Caddos — probably a small family group — did indeed produce salt at the Salt Well Slough site. Texas Historical Commission Archeological Reports 4. Includes 34 figures, 32 tables, 146 pages. \$15. To order, call 512/463-6090, email donna.mccarver@thc.state.tx.us, or fax 512/463-8927.

OCTOBER • TEXAS ARCHEOLOGY MONTH

TAM 2005 IS RIGHT AROUND THE CORNER!

Get free publicity for your organization
in the ***TAM 2005 Calendar of Events***

NOW is the time to start planning a Texas Archeology Month (TAM) event for October 2005.

You could:

- Use your imagination and do something that no one has thought of before
- Sponsor or co-sponsor an archeology fair
- Set up an archeology booth at a heritage fair or other cultural festival
- Arrange for a speaker at your regularly scheduled archeological/historical society meeting
- Set up an exhibit of archeological or Native American collections
- Organize an activity where Boy Scouts and/or Girl Scouts can earn an Archeology Badge
- Arrange for a slide presentation on archeology (a brown bag lunch?)
- Schedule a lecture, or a series of lectures
- Give a tour of an archeological site or museum
- Arrange a group bus trip to one of the major events in places like Austin, Del Rio, El Paso, Farmers Branch, Houston, Lubbock, San Antonio, Texarkana or Victoria
- Sponsor a workshop

Your free listing in the *TAM 2005 Calendar of Events* booklet depends on three things: (1) sponsoring an event; (2) filling out an event form; and (3) returning the form by **July 1, 2005**. Remember that **only events open to the public can be included in the Calendar**. Complete the form fully to ensure that your entry is accurate and informative. If you have a pamphlet that describes your museum or organization, attach a copy to the form. The printed *TAM 2005 Calendar of Events* booklets will be distributed statewide, and the list of events will be posted on the Texas Historical Commission web site, so don't miss this opportunity to publicize your organization's activities.

LOOKING FOR A BRIGHT IDEA?

The Texas Historical Commission and the Texas Archeological Research Laboratory compiled a manual entitled *How To Plan and Manage an Archeology Fair*. It includes ideas for activities and demonstrations that work for all kinds of TAM events, from the smallest to the grandest. To request a free copy, call Donna McCarver at 512/463-6090; fax 512/463-8927; email donna.mccarver@thc.state.tx.us; or write the address below.

NEED HELP OR MORE INFORMATION?

Write TAM, Archeology Division, Texas Historical Commission (address below); call 512/463-6096; fax 512/463-8927; or email molly.gardner@thc.state.tx.us.

Texas Archeology Month is coordinated by the Texas Historical Commission and co-sponsored by the
Texas Archeological Society and the Council of Texas Archeologists

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OCTOBER • TEXAS ARCHEOLOGY MONTH

TAM EVENT FORM • 2005

EVENT TITLE: _____

Event description: Be as specific as possible and give **details**. Provide descriptions of activities and presenters, topics of lectures and demonstrations and any other interesting details that will encourage the public to attend. Attach separate sheet if necessary.

EVENT DATE(S): _____ EVENT HOURS: _____ ADMISSION FEES: _____

Is event open to general public? (a requirement for Calendar listing) _____

Event location (include name of place where event will be held, such as Blank County Museum):

NAME OF PLACE: _____

STREET ADDRESS (INCLUDE DIRECTIONS IF NECESSARY): _____

CITY: _____ COUNTY: _____

Event sponsor(s): _____

Contact name, phone number and email address (if available) of one or two people who can be reached easily, and web address of organization. This information may be printed in the *Calendar of Events* booklet and listed on the THC web site:

(1) NAME: _____ PHONE: _____ EMAIL: _____

(2) NAME: _____ PHONE: _____ EMAIL: _____

WEB SITE (IF ANY): _____

Person, organization and address where **main** event sponsor can be reached by mail:

NAME _____

ORGANIZATION _____

MAILING ADDRESS _____

CITY _____ STATE _____ ZIP _____

Number of *TAM 2005 Calendar of Events* booklets you request for distribution: ____ NONE ____ 25-50 ____ 50-100 ____ 100-200 ____ 200+

Complete one form for each event and return by **July 1, 2005**, or email the required information by the same date. For additional information, email Molly Gardner at the address below or call 512/463-9505.

We welcome color photos of TAM 2004 events for possible publication in the *TAM 2005 Calendar of Events* booklet. We also can request permission to print photos from local newspapers if you provide a news clipping.

SEND FORMS TO: TAM, Archeology Division
Texas Historical Commission
P.O. Box 12276, Austin, TX 78711-2276
Fax: 512/463-8927

FOR MORE
INFORMATION: 512/463-9505
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Current Archeology in Texas is published semiannually by the Texas Historical Commission (THC). Address correspondence to Editor, *Current Archeology in Texas*, Archeology Division, P.O. Box 12276, Austin, TX 78711-2276; fax 512/463-8927; or email molly.gardner@thc.state.tx.us. Portions of the newsletter (not including Current Research items) that are not copyrighted or reprinted from other sources may be reprinted without permission. For information about alternate formats of this publication, contact the THC at 512/463-6096.

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Vol. 7, No. 1

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Current Archeology in Texas is financed in part by a grant from the National Park Service, U.S. Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior. All of the agency's public programs and activities are operated free from discrimination on the basis of race, color, national origin, age, gender, or disability. Any person who believes he or she has been discriminated against should write to Office of Equal Opportunity, National Park Service, 1849 C St., N.W., Washington, D.C. 20240.



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